

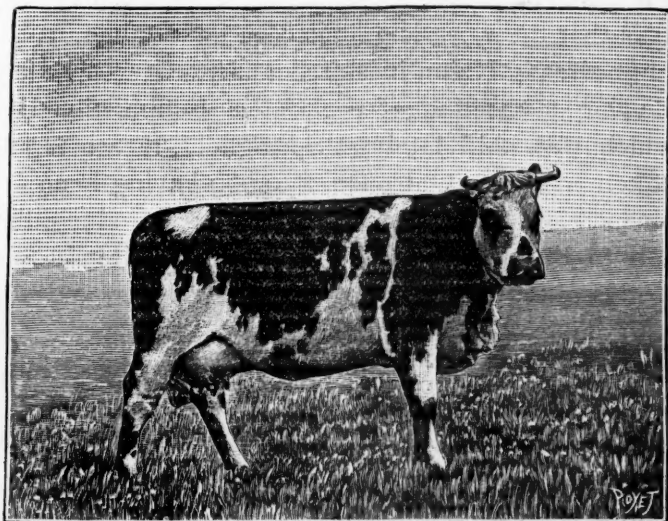
# AMERICAN VETERINARY REVIEW,

DECEMBER, 1894.

NOTICE.—Please address all communications regarding matter for publication, books for Review, Exchanges, etc., to the Editor, 139 and 141 W. 54th St., New York.

## EDITORIALS.

**COTENTINE COW.**—During our vacation in August last, while abroad, our great desire was to make ourselves more familiar with the true character of the Norman breed of cows, upon which we published articles in previous numbers, with the idea that had suggested itself to us, that it might prove an advantageous subject to take the place of the condemned Jerseys of to-day.



We have visited Normandy and its rich pastures, we have seen numerous herds of true Norman (Cotentine) cows right in their birthplace; and how well then we were able to appreciate the beauties and the true characters of that great French breed!

At one of the fairs held at Isigny, so well renowned for the supreme quality of its butter, made from the milk of the true Cotentine cows, we saw some of the purest and handsomest animals that could be thought of, and the wood-cut, which we issue to-day, is obtained from a photograph of one of them.

STAMPING OUT TUBERCULOSIS.—When we were in Philadelphia, last September, during our short stay, we had an opportunity to ask at random of Dr. D. E. Salmon if the Bureau was soon going to begin the work of stamping tuberculosis out of the country. He answered by a smile—that smile of his which we all know well—and tells so much when the Doctor wishes to tell so little—and we were free to think that the Bureau was not quite ready to enter into that enormous undertaking. If we are well informed, however, we were in error; and right or wrong, we understand that the subject has been agitated in Washington.

But if this is a *canard*, played at our expense, what is a positive fact is that the work is going to be undertaken at an early date, if not already begun in Massachusetts.

Following a meeting of the Cattle Commissioners of that state, which was held lately at Springfield, measures are going to be taken in earnest, at once, \$50,000 having been appropriated,—inspection, quarantine, tuberculin test, slaughter, compensation to the owners, etc., etc.,—all are already prepared, and a series of regulations regarding the subject, and which we present to our readers in this number, will be issued.

When one looks back at the time when Massachusetts undertook the task of stamping out pleuro-pneumonia, considers the thorough manner in which the work was carried out, and remembers that since that time the State has been free from that lung plague, it must certainly not be surprising to see that great

Commonwealth enter and be among the first in the field, and we hope for as good a success as the peculiarity of the disease and its similarity to that of the human race will allow.

For the veterinarians of Massachusetts the action of the Cattle Commissioners will prove a boon which will serve to elevate them in the public estimation as sanitarians, besides the benefits that they must necessarily receive for the services that the Commissioners will be obliged to ask from them.

A similar work was undertaken some time ago by the State of Maine, and our friend, State Veterinarian George Bailey, was then severely criticised for his action towards Massachusetts; but he must feel amply satisfied to-day for the gratification given to his actions by the decision of the Springfield meeting.

There is no doubt that the work in Massachusetts will be anxiously watched, not only by every State in the Union where tuberculosis exists, but also in those parts of Europe where the disease is so commonly observed.

A WELCOME NOTICE.—We have received the title of the translation of Friedberger and Fröhner's work on *The Pathology and Therapeutics of Domestic Animals*, by Prof. W. L. Zuill, M.D., D.V.S., which states that the first volume will be ready about November 30th, and the second about January, 1895; and it is with pleasure that we make this announcement to our readers. It is with anxiety that we will await the time when the book will be issued, with our best wishes for the success of the work.

For many of us, probably, the work is known only by name, as, unless one can read German or French, it must have been brought to our notice only through the reputations of the German authors, or by the remarks that we made when reviewing the French translation.

This last we might say is a revised edition from the German, containing, as it does, valuable additions from the French translators and critics, from one of the best veterinarians of France—Prof. Trasbot, the present director of the Alfort School.

Prof. Zuill has, therefore, in translating the French edition, with the notes which were added to it, done a good thing towards advancing veterinary education in this country. Up to date, Williams' *Practice of Veterinary Medicine* has been the standard work of many of our veterinarians, and of our American schools. The work of Prof. Zuill enters the arena for professional usefulness, and we feel that he will have no regret for having done it, as we are confident that the work will meet with the same reception that it did in Germany and in France. We will all welcome the work of Prof. Zuill and derive, we are sure, much profit and pleasure in reading it.

MALLEINE.—ITS USES.—In several of the preceding numbers of the REVIEW, we have presented to our readers articles concerning the use of malleine in the diagnosis of glanders, in which we have endeavored to call the attention of veterinarians to the value of the Russian discovery, and it was with great interest that we read the long article of Prof. Harger in one of the last numbers of the *Veterinary Magazine*, relating a series of experiments which he had carried on, and of observations he had gathered at the clinics of the Veterinary Department of the University of Pennsylvania. If with these we recall the first article of Prof. Kilborne, presented to the Chicago meeting of the United States Veterinary Medical Association, it was justifiable to expect that American veterinarians would be eager to bring malleine into practice, and ask of it the results that it has given to others. And yet, if we are to judge by what is recorded in our journals, it seems that our efforts have been made in vain.

In our next number we intend to publish two more articles on the subject, one from the pen of Prof. Nocard, and one from a paper presented to the congress held lately in Buda Pest. These, we hope, will bring our colleagues to their senses, and will convince them that in malleine they have a powerful detective, which, we believe, does not fail in its application, and which they can no longer ignore.

The facility with which malleine can be obtained at Wash-



ington, from private laboratories, or from the Bacteriological Department of the Pasteur Institute in New York, whose advertisement can be seen in the REVIEW, is such that no one is justifiable in trusting any longer to the old modes of detection, even almost to the inoculation of other animals, in the inquiry as to the true existence of glanders in a doubtful or suspicious case.

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## ORIGINAL ARTICLES.

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### NOTES ON SO-CALLED SLOW FEVER.

BY HERBERT S. ADAMS, V.S., Centreville, Md.

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*Malarial Fever, or Miasmatic Poisoning.*—This is a disease I have learned very little about except by actual observation, since my residence here, on Easternshore, Maryland. The only article I have seen in print on this subject is the third report of the State Live Stock Sanitary Board of Maryland, December 1st, 1891, by Dr. Robert Ward. I will try and give the history of causation of the disease and the conditions most favorable to it. I find that wherever it crops out there are two or more cases. I have seen it in horses, mules, and cattle, but very rarely in the latter; mules are not as subject to it as horses, and young animals more than old. Persons who keep fat and well nourished animals seldom, if ever, have the disease. Farmers who keep their stock in poor condition are the ones who have this trouble, if the conditions are favorable to it. They are as follows: I find it is contracted in late summer and autumn months, when the pasture is scarce and water very low or stagnant. It makes its appearance the following spring and early summer months, more especially in the spring when the animals are put to work in a poor condition and are shedding their coats. I think eating grass out of drain ditches or bogs, for that is the last grass that is eaten in a scant pasture. In the early spring these drain ditches, etc., are all full of water, and the grass growing in them is covered to a great extent by water and when dry weather comes on it is dried up leaving the grasses covered

with a coat of miasm, which in some cases can be seen by the naked eye. I have seen this disease caused by hay cut off a bog and very low ground; this kind of grass was a mixed variety of all sorts, although the hay was cured well and *not* soaked by rain during; when shaken up was very dusty and had a very unpleasant smell. There were two horses that were kept up and fed this hay with corn fodder. They had not been at pasture for a year or so; their drinking water came from a well some distance from a stable on high ground and was pure. So I attributed the cause of the disease in these horses to the hay on which they were fed. One lived three weeks and the other five after having been taken sick. Some cases attribute their trouble to stagnant and impure water, ditch and bog pastures, or both. In several instances where it was caused by stagnant ditch water alone, there were cerebro-spinal meningial symptoms in mild form exhibited, and after they had subsided malarial fever symptoms were very plain. Their drinking place was a ditch of surface water in which grew grasses of all kinds and which had a very bad smell. Three horses and several cattle were the victims of this plague. I did not see these cases until several were dead and others past recovery.

*Symptoms.*—First stage, acute, is noticed by great weakness if the animal is at work, and very soon gives out standing with legs spread out to keep from falling, breathing very heavily, with a look of extreme distress; after some little time, gets somewhat relieved and sweats in the flanks and behind the ears; then the symptoms begin to look more like pericarditis, chills with a good deal of severe pain, then a choking cough which the animal tries to suppress, high temperature, 104.1-5 to 107° F.; with quick hard pulse 80 to 100 per minute; fever is three to five degrees lower in the morning than in the evening, and you can hear a grating sound by putting your ear to the side of the chest, characteristic of the disease, pericarditis. The next day you see, by standing near the side of the animal, pulsations of the jugular vein, caused by the effusion which partly fills the pericardium, and you can hear a faint splashing

sound. Then comes the second stage: this effusion of the pericardium does not become acute, but assumes a chronic form and remains in this state until hydropericardium and dropsy in general of the system carry off the animal by exhaustion. Sometimes they die in the first stage, but not often, and death is caused by the symptoms I have given. The second stage, and this is the period at which I am generally called, especially in the summer when the animals are at pasture. The owner informs me he has a case of slow fever he wants me to treat. The animal is very dull and weak, glass-eye, drags its feet as it walks, and the flesh seems to melt off its bones, and in three weeks it is a walking skeleton; they generally eat all kinds of food fairly well, but in small quantities. I have seen several eat ravenously, bowels act about natural, fæces covered with slime, food well digested, and no bad smell, and are the right color, urine high-colored and loaded with salts of urea, and in small quantity. Respiration a little quicker than natural, mucous membrane very pale and anæmic, regurgitation of blood in jugular vein very plainly seen, pulse 75 to 100 per minute, temperature  $94^{\circ}$  to  $106^{\circ}$  F., the extremities are warm and cold by turns, and are not swollen until approaching dissolution. I have seen animals drop dead while eating, and to appearances been doing and eating well, and in one case light work the day before he died. There is no tendency to biliousness in horses or cattle like human beings when suffering from malaria, and in no case can I remember any symptom of an excess of bile on the system in any animal. *Third and last stage*, which a speedy dissolution is to be expected at any time. First you notice a swelling of the legs, then sheath in the male, and mammary gland in the female often extending forward between the front legs, and then various complications set in and appetite fails, which hitherto has been fairly good. I have seen the same animal suffering from hydropericarditis, hydrothorax and septic poisoning at the same time, but the majority of animals die before they reach this stage. There seems to be a predisposition to pleurisy if exposed in any way. They generally stand until they die;

should they go down from exhaustion, they breathe very hard for an hour or so and die without a struggle. Post-mortem of those dying in first stage, my examinations were not very careful, having no one to assist me, and they were generally done in a hurry. On opening the body there is nothing very noticeable except there is a general engorgement of all the internal blood-vessels and symptoms of general inflammation throughout the viscera, but not at all localized except at the pericardium which has a swollen appearance and on cutting through it find the cavity full of serous fluid which is sometimes mixed with blood; the heart is the natural size but soft and flabby to the touch, lacking the firm hard feeling it has in health, and on opening it no valvular trouble can be seen; blood very dark and coagulated very firmly, I have only seen three die at this stage: most of them recover and die in the second stage. Post-mortem of second stage shows the following conditions, which are very hard to come at the cause of death, except the presence of hydropericardium, the whole of the viscera being apparently healthy. Bowels are filled with digested food, rectum contains faeces which were covered with mucus, stomach full of partly digested food, bladder was full of urine which contained a great deal of albumen and mucous. The pericardial sac contained nearly as much fluid as it could hold, condition like that of first stage, soft and flabby. Third and last stage. Very few reach this condition, which is a general complication of hydropericardium hydrothorax and septic poisoning, the animal presents a loathsome object, of which I have not made any post-mortem examinations, as those I had for subjects had been dead for some hours and were very impotent as it was hot weather. Treatment of first symptoms are as follows: Tincture digitalis and tincture aconite reduced in equal parts of each gave 30 M. every hour until pulse and temperature were reduced, and if pain continued, I gave chloralhydrate in  $\frac{3}{4}$  ss. doses every hour and half until pain ceased; nit. potassium 3 i. in every gallon of drinking water until the kidneys were active; in twenty-four hours these symptoms subsided, and I treated as follows for sec-

ond stage: first gave the animal a good purge, aloes 3 viii. to 3 x. in a bolus followed up with

Quinine sulph.	gr.xl.
Ferri sulph.	gr.xx.
Nix. vomica pulv.	3 i.

M.

Sig. Given as one bolus three times a day.

Or

Quinine sulph.	gr.l.
Liq. paotas. arsenici.	3 ss.
Spt. fermenti.	3 iii.

M.

Sig. Given as one drench three times a day.

Quinine sulph.	gr.l.
Spt. fermenti	3 iii.

Sig. Given as one drench three times a day for a week.

I try any of these prescriptions and see which does the most good and keep it for a week or ten days and see which one is required.

Should like to hear about *Bottom* disease of Dakota and Missouri. I judge them to be a kind of malaria and should like to hear about them.

## TUBERCULOSIS.

BY PROF. E. P. NILES, D.V.S.

A paper read before the Virginia State Veterinary Medical Association.

So much has been said and written on this subject that I fear any attempt on my part to give you anything new will result in an abortive effort. It seems to me, therefore, that the president of this association has made one of the greatest mistakes of his life in appointing me as an essayist on this particular subject. That the subject is, however, an important one all will admit, for there is probably no warm blooded animal that shows perfect immunity against this terrible disease.

That it is readily transmitted from one animal to another, and from the lower animals to man, hence a highly infectious disease, no one can authoritatively deny.



That it furnishes both the medical and veterinary profession with a serious problem to solve, is an accepted fact.

That it affords the state legislatures an opportunity to do *something* for the benefit of their constituents, is a fact yet to be impressed upon the minds of those honorable bodies, for without the proper legislation the veterinary and medical profession can do practically nothing toward stamping out the disease. We can advise, and continue to advise until Gabriel blows his trumpet; but it does no good with the majority of the masses unless we have the power to put our advice into practice.

That the aid of the state authorities is needed to check the ravages of this disease, I shall attempt to show later on in my paper.

No doubt you are all familiar with the history of tuberculosis, but to bring the subject more vividly before you in all of its phases I shall worry you for a few moments with the views of our ancestors, and in so doing endeavor to demonstrate to you that those who are now advocating the infectiousness of the disease and calling for public aid are not doing so without a firm foundation upon which to base their arguments. Tuberculosis has been known, although imperfectly understood since the days of Moses; for in the laws of Moses we find that the flesh of tuberculosis animals was discarded as unwholesome. In the ninth century European people made laws which forbade the use of tuberculous meat. These laws were continued, or made more rigid, as late as 1858. In 1702 the disease was coupled with syphilis, and, hence, named the French disease. About this time, or soon after, Germany made stringent laws, compelling the slaughter of all tuberculous animals. But in 1783 it was shown that the diseases had no connection with each other, and the strict regulations were at once relaxed. From the above it would appear that the former regulations were made solely through the fear that tuberculosis was of a syphilitic nature, and that when this was disproved all fear of the disease was banished. We cannot, however, help but believe that among the more learned class of people this was not the case, but among

the public in general this secondary idea had become so firmly impressed upon their minds that the rigid laws could no longer be enforced. Up to the year 1783 the contagious theory of tuberculosis had many advocates, yet the balance of opinion was on the opposite side. Even those who affirmed the contagiousness of the disease were in the dark as to its true cause. Some fault in the animal's hygiene was, as a rule, the attributed cause, the nature of which was not known. The first intimation that some irritating or infectious element was contained in the milk of cows suffering with the disease is due to Gerlach, late director of the Royal Veterinary Institute of Berlin.

Villemin, Klebs, Orth, Buhl, and others, demonstrated, during the period from 1857 to 1864, beyond a doubt that the elements from tubercular diseased organs contained some peculiar infectious material, and when inoculated into other animals experimentally was capable of producing the same disease. As a result of these experiments Villemin announced, in 1864, that tuberculosis was a specific disease, and due entirely to some specific cause from without the organism. The true cause of the disease, however, remained shrouded in darkness until Koch, in 1882, announced his discovery of the bacillus of tuberculosis. Since that time all of the experiments have served to strengthen Koch's statement that the *bacillus* is the sole cause of tuberculosis.

The manner in which the disease spreads from one animal to another, and from the lower animals to the human family, and *vice versa* is an interesting one and demands our serious consideration.

As all, or most, warm blooded animals are subject to the disease, the germ must necessarily have a large number of carriers. Before entering into a discussion of the manner in which the disease is spread it may be stated that the germ may enter the system of the healthy subject through the respiratory, digestive and sexual organs and skin. It may also enter the unborn foetus through the dam. It most frequently, however, enters the system through the digestive and respiratory organs.

When the infection is through the respiratory organs the subject must be brought in close contact or housed with others suffering from the disease. Not so with those that are infected through the digestive tract. For the germ may be carried for miles by other smaller animals. Since rats may be infected they may become carriers of the bacillus; feeding in the feed troughs and mangers as they do, one tuberculous rat may easily infect a whole herd of cattle by contaminating the food of these animals. Cats which have slept in the mangers of tuberculous animals have been known to contract the disease. They, too, may be common carriers of the bacillus, distributing them alike among the human family and the lower animals. It is also reasonable to suppose that the cat may contract the disease from the human subject, and from them communicate it to the lower animals. It was formerly supposed that dogs showed perfect immunity against the disease, but recent experiments have demonstrated that they are by no means uncommon subjects. They, therefore, may distribute the disease far and wide. The earth worm is also said to distribute the disease by bringing to the surface the germs from tuberculous animals which have been buried. Buzzards, though possibly not susceptible to the disease, may also distribute the germ in every direction from the carcasses of tuberculous animals which have been allowed to lie on the surface of the soil. Diseased cattle may infect the pastures, barn yards, springs, etc. These are all possible sources of contaminating the food and water consumed by the healthy individual, thereby indirectly affecting animals which, in some instances, may be miles away from the primary cause of infection.

Infection through the skin is rare, and usually takes place through an abraded surface.

Infection through the generative organs is also comparatively rare, and is the result of allowing healthy animals to be bred to those suffering from genital tuberculosis.

Infection of the unborn foetus through the dam may occur, but in such instances abortion is the rule; the foetus rarely ever being born alive with tuberculosis. An abortion in a hu-

man subject, whose sputum contained a large number of the bacilli of tuberculosis, was recently reported to the writer by a local physician.

That animals may contract the disease from tuberculous attendants is also a question worthy of consideration. The prevalence of tuberculosis in the lower animals is alarming, and if the statistics were carefully collected it would be seen that the disease is much more prevalent in the human family than is generally supposed by the public. In the human family the average ratio of deaths from tuberculosis to the total mortality is 14 per cent. while in some localities it runs as high as 33 to 50 per cent. Prof. Law, of the Cornell University says: "If the 5,490 deaths from tuberculosis which occur every year in the city of New York could be brought together in an epidemic lasting but one week, no small-pox, cholera or yellow-fever scare would approach the panic which would thus be created." Again: "If we take the whole civilized world and compare with the tuberculosis mortality, all the accumulated deaths from the war, famine, plague, cholera, yellow-fever and small-pox, we find that the latter are comparatively very insignificant." Yet comparatively nothing is done to stamp out, or check the ravages of this terrible disease. If in the lower animals, cattle especially, the disease was one that produced death in a short time the mortality in one year would be greater than that of all other diseases combined. Accurate statistics are wanting to give the accurate percentage of tuberculous animals in our herds, due to a lack of systematic professional inspection of all live animals, and those slaughtered for food. That the disease is more prevalent among the bovine than any of the other animals is probably due to the fact of their being more closely housed, more highly fed for dairy purposes and receiving less exercise. All domestic animals, however, take the disease readily enough when inoculated with it. In dairy cows and breeding cattle the disease is much more prevalent than in any other cattle, due to the fact that their vitality is lowered by high feeding, lack of proper exercise and being over crowded in poorly ventilated stables. It

is said that in some herds the per cent. of tuberculous cattle runs as high as 98, while in others no trace of the disease exists. These latter have been fortunate enough not to have had a tuberculous subject introduced in their midst. The following figures will give some idea of the ratio of infection in the different sexes. Although the statistics are probably somewhat inaccurate, it will be seen that cows head the list, oxen second, bulls third and yearlings and calves fourth. The fact that steers are usually allowed to run at large, which lessens the frequency of exposure, and that they are usually marketed at from two to four years of age, explains why they are less frequently affected than cows. Bulls, too, are usually kept by themselves and are, therefore, not so easily exposed. The disease being more prevalent in older animals accounts for the low per cent-age in yearlings and calves. Germany furnishes us with the following statistics from a number of its abattoirs as follows: Cows, 6.9 per cent.; oxen, 3.6 per cent.; bulls, 2.6 per cent.; calves and yearlings, 1 per cent. In Leipsic, tuberculous cows were 26 per cent.; oxen, 19.5 per cent.; bulls, 15.4 per cent. and calves, 9.3 per cent. Amsterdam shows a steady increase of the disease for the last six years as follows: In 1888 out of a total number of 28,016 animals slaughtered, 495, or 1.76 per cent., were tuberculous. In 1889, out of a total number of 26,225 animals slaughtered, 793, or 3.5 per cent. were tuberculous. In 1890, out of a total number of 22,813 animals slaughtered, 755, or 3.3 per cent. were tuberculous. In 1891, out of a total number of 23,392 animals slaughtered, 1,246, or 5.3 per cent., were tuberculous. In 1892, out of a total number of 25,454 animals slaughtered, 1,332, or 5.3 per cent. were tuberculous. In 1893, out of a total number of 28,342 animals slaughtered, 1,491, or 5.26 per cent., were tuberculous.

If accurate statistics could be gotten in this country no doubt they would be equally, if not more alarming, than the above.

The prevalence of tuberculosis in the human family has been mentioned above, and the question may be asked, why is the



mortality so great in the human family? For an answer one only needs to consider for a moment that, as a rule, there are no sanitary precautions taken by families who have tuberculosis in their midst; and unfortunately by many of their family physicians. Not long since, the writer was informed of a family of mountaineers who lived in a little log hut. A member of this family had tuberculosis, and expectorated on the walls, floor, and, in fact, wherever it was most convenient. The result is that there are two or three more patients in the same family.

If there was any doubt about the disease being contagious this one instance is ample proof of the affirmative. There is no doubt but what a large per cent. of the causes of tuberculosis in man are due to the use of flesh and milk of tuberculous animals. It may be safely stated that no less than fifty per cent. of the cases are developed from this source, which can only be avoided by means which I will suggest later.

The danger of using tuberculous meat and milk is twofold, viz.: that of contracting the disease, and that of aggravating the disease in those already affected.

It is a well known fact that the milk of tuberculous cows is much more dangerous than the meat, since the milk is usually consumed in the raw state. Meat, however, may contain the live germ, and even though the meat may be cooked done, the temperature may not have reached a point sufficiently high to destroy the germ in all parts of the meat. It was formerly supposed that salted meats were perfectly safe for consumption, but later experiments have shown that the germ may survive as long as thirty days. As the salt does not penetrate all parts of the meat alike, some of the germs may survive even longer. Our European friends recommend sending tuberculous cattle to the butcher if not in poor flesh. This practice cannot be too strongly condemned, for although the lesions may be local the germ may be in all parts of the body, since it is circulated by the blood and lymph. It may be stated in this connection that the germ is necessarily circulated in the system for some time before general tuberculosis takes place. The mere fact, then,

that the visible lesions are local is no indication that the flesh and milk of such animals are free from the germ. That the milk of tuberculous animals is exceedingly dangerous is demonstrated by the fact that a large majority of all the deaths of bottle-fed infants in the large cities are due to some form of tuberculosis.

*(To be continued.)*

## TUBERCULOSIS.

By J. FAUST, V.S., POUGHKEEPSIE, N. Y.

A paper read before the U. S. V. M. Association.

MR. PRESIDENT AND GENTLEMEN:—To me has been assigned the practical part of tuberculosis. When I think of writing something of value to the profession on this subject, I pause. From 1784 to 1886 no less than two hundred and fifty Europeans and a great many American veterinarians have furnished us literature on tuberculosis.

My great fear, gentlemen, will be that you will not find anything new in the following remarks, but my effort is to furnish my mite to the profession I so dearly love.

My first effort will be in the direction of the history of a few herd of my own knowledge.

Mr. A. Rogers, of Hyde Park, Dutchess County, had one of the finest selected herds of Jerseys, which to my knowledge had been healthy for years. Then Mr. Rogers bought at auction, in the city of New York, a lot of heifers which were bred and raised by Mr. P. Scobel, of Dutchess County; said heifers were tuberculous to my knowledge. One year after the purchase, I killed at different times twelve cows which proved to be tuberculous. One of the post-mortems was witnessed by Prof. Liautard, and the specimens examined microscopically and the bacilli tuberculosis found.

I made a series of experiments, first by inoculating a calf with the serum pressed out of a tuberculous lung. In sixty-eight days this calf was slaughtered at my hospital, and was

witnessed by the City Board of Health and Physicians. This calf proved to have general tuberculosis, From the calf I made a pure culture and injected a portion in Dr. Junghnns house cat, as he wished a daily observation of it. In eighty-six days this cat was destroyed and post-mortem made in the presence of the best physicians in our city. This cat proved to have general tuberculosis.

There was a new consignment of Dutch Belt cattle brought and placed with another herd. About one year after this twelve of them went to Massachusetts. On the eighteenth of August, 1894, the superintendent told me that every one of the twelve pined and died of tuberculosis.

The dry stock of J. Gilbert, of West Park, whose farm joins that of Mr. A. Rogers, broke through the fence and mingled with these diseased cattle for ten days. One year ago last May, the State Board of Health authorized me to make an investigation of said herd of forty heads. Of this number thirty were killed and twenty-nine proved to be tuberculous. This investigation took place three years after the mingling of cattle.

G. A. Boch, of Poughkeepsie, bought twelve herd of registered Guernsey cattle from Massachusetts. Three days after their arrival, I was called to examine one of those cows which was in the last stages of tuberculosis. I advised Mr. Boch to kill the remainder of that purchase, which was not done, and in about one month after that eleven head of Guernsey cattle were bought and he gradually increased his herd to eighty head.

Everything went along very fair the first year except many cases of mammitis, but after that he had to kill two or three at a time until he had killed seventy heads in eight years. Then Mr. Boch died and the remainder of the herd was sold at auction, as there was no law to prevent him. Mr. P. L. Van Wagon bought of this lot twenty-five heads and placed them in his herd, which numbered about forty head. These cattle were bought contrary to my advice. Sometime after the purchase Mr. Van Wagon was convinced of what I told him, and he slaughtered some and sold some, but kept two in his herd. One

year ago I investigated his herd with tuberculin, sixty-two heads, and found twenty-nine heads tuberculous.

Mr. Douglas Merritt, of Rhinebeck, Dutchess County, bought, fifteen years ago, one heifer of Mr. J. D. Wing, of Millbrook, Dutchess County. I examined said heifer and pronounced her tuberculous. She died one month after of tuberculosis. I never heard from Mr. Merritt's herd until last year, when I was called to test his cattle for the State Board of Health with tuberculin. I found seventeen diseased out of twenty-one heads. Post-mortem showed extensive tuberculosis in all cases.

F. Traver, D.V.S., of Rhinebeck, was kind enough to furnish me with the post-mortem results of an entire flock of sheep which proved to be tuberculous. These sheep were in the same field with the cattle. I have learned since the investigation that his hogs proved tuberculous also.

Soon after the investigation of Mr. Merritt's, I tested the herd of John D. Wing, of sixty-two heads, and found twenty-seven diseased, which were slaughtered in the presence of Prof. Law, who represented John D. Wing.

Mr. O. T. bought twenty-five heads of cows of John D. Wing, and nineteen out of twenty-five proved tuberculous besides affecting his own herd.

Hon. Levi P. Morton's herd of sixty-two cattle were tested with tuberculin and twenty proved to be tuberculous.

The statement of Mr. Cottrell, superintendent of the Morton place was, "I never bought a cow of Mr. S. Verplank, of Fishkill but what died of tuberculosis." I then went to Mr. Verplank's place and tested his herd of fifty-five heads and found twenty-seven diseased. H. Davison, D.V.S., of Millbrook, told me he never had tuberculosis in his herd until he bought cows from Mr. Ver Plank.

Mr. E. N. Howell, of Poughkeepsie, Dutchess County, imported in 1887, 1888 and 1890, twenty-six heads of Guernsey cattle, a very choice lot. One year following the importation some of the cows commenced coughing and became emaciated,

with the best of feed. Some of these cattle aborted and finally died. On post-mortem they showed tuberculosis.

Year after year this disease kept increasing in this herd and on the ninth day of November, 1893, I tested the remainder of this herd of forty-four head. There were nineteen destroyed, three awaiting slaughter and eight to be tested. On testing the eight heads all were found to be tuberculous.

But of the twenty-six heads imported they raised sixty-one which reached maturity. Of this total of eighty-seven heads, there are to-day only two living.

There were no cows, calves or bull brought to this place except the twenty-six head imported up to two years ago; he then had to buy new cows for the ones which had died or had been killed for tuberculosis. About five years ago I diagnosed tuberculosis in this herd; since then this so mortified him that he employed other veterinarians to examine his herd, but all agreed with me.

On September 4th, I killed and cremated the last five tuberculous cows on said premises. Mr. Howell claims that he imported this disease from Guernsey Island, to which the evidence all points.

Messrs. Sears and Howell, of Blooming Grove, Orange County, had a herd of seventy-nine heads Ayrshire and grades. They bought five cows from a dealer and placed them with their cattle. In about six months they began to lose some cows. I made an investigation of this herd with tuberculin and found sixty-two diseased.

Mrs. Allen, of Pittsfield, Mass, owned a very fine selected herd of Jerseys of one hundred head. Of this number thirty-three were killed on physical diagnosis. I tested the remainder with tuberculin and found thirty-three diseased, total number sixty-six. The infection of this herd dates eight years back when they bought one bull and three cows. The bull died in about six months after purchase, very much emaciated, with bad cough. No post-mortem made.

Mr. D. Willigan, of Gardner, Ulster County, had a herd of twenty-four heads which I tested and found twenty-one diseased.



His infection came direct from his neighbor, whose herd pastured on adjoining fields. Said neighbor's cows were tuberculous and the local health officer reported this herd to the State Board of Health; he also killed and held post-mortem on several in the presence of a veterinary to confirm this belief, and proved they were tuberculous. But before the State Board of Health took action he sold them at auction.

L. Burchard, of Hamilton, Madison County, N. Y., President of the County, sold one cow which was slaughtered for beef, and after slaughter was found to be extensively tuberculous. This fact alarmed him and he made application to the State Board of Tubercular Commission. Dr. Henderson, of Syracuse, and myself were sent to make an investigation. We found a herd of forty-five cattle. Of this number twenty-three were diseased. This man bought two calves from a veterinary surgeon of Baltimore, and one of the calves was the cow sold for beef and proved tuberculous.

The Baltimore herd proved to be tuberculous, for this entire herd was sold and killed.

I think I have cited sufficient cases to demonstrate the contagion of one herd to another.

A few remarks in regard to economy on the part of the dairy-man.

With the present knowledge of this disease, with the aid of tuberculin, and a willing government, will we ever find tuberculosis so extensive as we have in the past?

For example, Cromwell, of Long Island, one hundred and ninety-three heads of diseased cattle.

George A. Bech, of Poughkeepsie, seventy heads of diseased cattle.

Douglas Merritt, of Rhinebeck, nineteen out of twenty-one cows, a flock of sheep and his hogs.

Hon. Levi P. Morton, of Rhinebeck, twenty head of cattle and four hundred chickens.

John Gilbert, of the town of Poughkeepsie, twenty-nine out of forty cattle.

John D. Wing, of Millbrook, twenty-seven diseased cattle.

Mrs. Allen, of Pittsfield, sixty-six out of one hundred heads.

P. L. Van Wagnen, of Poughkeepsie, twenty-nine out of sixty-two heads.

Sears and Howell, of Blooming Grove, Orange County, with sixty-two out of seventy-nine heads.

Mr. S. Ver Plank, of Fishkill, with twenty-seven out of fifty five head.

S. Burchard, of Hamilton, with twenty-three out of forty-five head.

D. Willigan, Gardner, Ulster County, with twenty-one out of twenty-four.

And numerous others, which time would not permit, could be cited.

Now, gentlemen, you can see by these few examples which I gave, and of which there are hundreds more, the extensive existence of this disease. I think it time our government should take strong measures to stamp it out from the standpoint of economy.

The following points will be of great value in the investigation of herds:

First, your highest natural temperature is from 5 P. M. to 9 P. M., and from 9 P. M. to 1 A. M. gradually decreases, and gradually increases again from 1 A. M. to 6 A. M., and then from 6 A. M. to 12 M. gradually decreases. The morning rise is not as great as the evening rise.

In hot weather while in pasture and in hot stables, also after exercise and feeding, the temperature is increased. Large quantities of water will reduce the temperature.

My plan in investigation has been to have the cattle placed in the stable at 5 P. M. initial temperature about 7 P. M. and inject tuberculin at 10 P. M., and then start to take the temperature at 6 A. M., 8 A. M., 10 A. M., 12 M., 2 P. M., and 4 P. M., and longer under circumstances.

The animals to be tested are to receive no food or water from 5 P. M. until 5 P. M. the next day.

One fact in taking the temperature: make all the cattle stand as all cattle defecate shortly after rising. This will probably save you many thermometers. The preparation of tuberculin is accomplished in the following way by me :—

181-2 drams of 1° solution of carbolic acid, using distilled water, and one bottle of Koch's tuberculinum which makes 20 drams of solution, I inject from twenty to sixty drops according to age and size of the animal. Injection to be made in centre of the shoulder. In cows you suspect of chronic tubercular mammitis, be sure and use the full dose, as they are hard cases to get reaction.

The question has arisen in regard to at what rise we shall consider a cow tuberculous. In the year 1892, we, as Inspectors of New York State, were instructed not to kill any cattle unless we had a rise of 21-2° or upwards, but I am frank to say that many cases of tuberculosis were left behind to which I have since been called to kill and hold post-mortem and found them tuberculous. I have found where there has been a steady rise of 1° or upwards, these cattle are very suspicious and generally are tuberculous. I should strongly advise to isolate them for a second investigation.

The total number of animals which I tested up to August 27, 1894, was eight hundred and sixteen heads, and out of this number three hundred and fifty-one have been killed and post-mortem records kept of same. Out of three hundred and fifty-one killed there were six which did not react, but were killed on the strength of a difference of opinion. In five of these cases there was pneumonia. The sixth one had a very marked dullness of one lung, a cough, and also emaciated. We found a piece of wire had penetrated the lung.

Out of three hundred and forty-five cattle which reacted, I have to record one failure, that of Mr. J. Gilbert's. The only thing found diseased in this cow was where wire and nails had penetrated the paunch. At this place there was a hardened bunch, which might have shown the tubercular bacilli if examined with the microscope. I have had a very narrow escape of

a mistake in two calves of John D. Wing's which had marked reaction, in which we found numerous small black tumors all through the messenteries. Prof. Law, who witnessed these post-mortems took these small tumors and inoculated rabbits, and on the 15th of June, 1894, at a meeting of the Tuberculous Commission, Prof. Law told me that these rabbits proved to be tuberculous.

I will speak on the sanitary condition of stables where I have tested cattle.

J. Gilbert, one stable, good; sunlight good. The other stable so bad that I advised him to abandon it.

Hon. Levi P. Morton, money and science could make no improvement.

E. N. Howell, sanitary conditions good.

J. D. Wings, sanitary conditions good.

S. Verplank, had two stables, one very good and the other very poor.

D. Willigan, stable in good condition.

Sears & Howell, one basement stable uncommonly poor, so much so that I advised them to never put any cattle there again. The other stable was above ground and in very good condition.

L. Burchard, stable very poor.

Mrs. Allen, stable very fine.

E. Clarkson, stable very poor and no diseased cattle.

George Cromwell, who suffered the heaviest loss, has a stable one story high, above ground and plenty of ventilation on all four sides.

M. Scofield, stable good.

I have mentioned these conditions as the question may arise to what extent the housing of cattle under poor sanitary conditions might play in the spread of tuberculosis. In a few of the herds which suffered badly, I found the focus in a basement under the stables. I have made it my special duty to advise farmers to better their stables for the housing of their cattle and especially the ventilation direct from the stables through the roof, and more sunlight.

I do believe, with the united effort of the profession, in the near future we will see a great improvement in this direction by explaining to the farmer the necessity of it from the point of economy.

*The Disposition of Slaughtered Animals.*—My plan has been where possible to cremate the animals. I first got a large quantity of brush and on this pile a large quantity of cord wood. I then make a run and draw the carcasses on top of the wood, piling them up. I then saturate the carcasses and wood with kerosene oil, one-half barrel of kerosene will be sufficient for from fifteen to twenty head, and will do the work very well.

*Separation of Cattle.*—In stamping out the disease, if we cannot get the aid of the government for compensation and the losses are too great for the owner to bear, then separate the well cattle from the diseased.

Disinfection is just as necessary as the destroying of the cattle.

The following is my rule of operation: First sweep, then wash with boiling water and soda, allow to dry, then use bichloride of mercury and wash with it. Make solution 1-500.

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## THE INFLUENCE OF CLIMATE AND OTHER ENVIRONMENTS ON THE DISTRIBUTION AND CHARACTER OF DISEASE.

By PROF. W. L. WILLIAMS, V.S., Montana.

A paper read before the United States Veterinary Medical Association.

(Continued from page 551.)

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I once treated a suspected animal for a few weeks, and then casually asked a competent officer to examine the horse, and he unhesitatingly pronounced the horse sound, and I concurred; but the horse had glanders, and we both eventually concurred upon that point; but the owner very properly called another veterinarian, because the history of the case and our opinions had not appealed strongly to his intelligence.

Again, I saw a pony with severe glanders pneumonia, which an experienced veterinarian said would die in a few days; but



when we forcibly killed her some months later, she showed little constitutional signs of disease.

In another case, a veterinary officer condemned a horse severely affected, shot it in the head at close range with a shotgun, saw it roll over and go into its death-struggle when, on account of a storm, he turned away. Later the owners helped the animal to his feet, fed him liberally, the hole in his head healed, and some time later, when the horse had apparently recovered, the veterinarian found it difficult to persuade the owner that his horse was affected with a surely fatal disease and must be killed.

I claim that it is not appealing to intelligence to urge the destruction of glandered horses upon the ground that it is either rapidly or surely fatal, because such assertions are evidently incorrect, and horse-owners can see it as well as veterinarians. Science is truth, and the prevailing notions of the course and terminations of glanders are not true, and veterinarians are largely responsible for it.

I have been surprised and gratified by the unanimity by which those I have asked to aid me in this paper, have, when any opinion at all is expressed, granted the possibility of recovery in cases of glanders.

In bovine pleura-pneumonia we find ample reasons for quarantine and slaughter, when only a small percentage of cases resulted fatally and the disease was not communicable to man. How much more may we urge slaughter when eventually nearly all cases prove fatal and at all times the danger of human infection confronts us?

Tuberculosis is, in many respects, allied closely to glanders and its distribution and character are modified by similar influences. In both diseases the course and duration is indefinite; the bacilli arranging themselves in groups in various tissues and organs, become encapsuled and eventually tend to perish therein. Both affect largely, both primarily and secondarily, the lungs, and both attack preferably the lungs of those individuals among susceptible species, other environments being equal, in

which these organs are not constantly very active but contain at some, if not at all times, a large amount of residual air. High altitudes with consequent dry atmosphere bring about special chest development and require for the sustenance of life a much more complete and active respiration, and permits much less residual air. Post-mortem examination of glandered horses at altitudes have thus far in my experience, indicated a much less development of pulmonary tubercles than attains in like cases at lower altitudes. Close stabling without exercise produces results quite parallel to low altitudes with humidity; hence, where the two are combined we would expect and do find the greatest prevalence and most virulent type of tuperculosis, while in the high altitudes with dry atmosphere it is unknown except as directly imported.

Dr. Waugh (Allegheny, Pa.) saw tuberculosis only in sojourning human invalids in California, New Mexico, Arizona and old Mexico. The same holds true in Montana and so far as I can learn throughout the Rocky Mountain region, although cattle abound everywhere but are rarely stabled. The only case of tuberculosis reported to me as having originated in the west was one by Dr. A. H. Baker in a Colorado bullock killed at Chicago stock yards.

As we approach the Mississippi River the disease becomes somewhat prevalent, so that Dr. W. B. Wiles, Ames, Ia., and Dr. G. A. Johnson, Sioux City, Ia., report the disease somewhat prevalent in that state, especially in stabled herds, and Dr. S. Stewart, Kansas City, Kan., reports whole herds of cows infected in western Nebraska and Kansas and eastern Colorado, chiefly in the udder without general lesions.

The intection in these cases he charged to diseased bulls brought from the east. Dr. Mayo, Manhattan, Kan., sees the disease only in highly-bred cattle, and in Arkansas Dr. Dinwiddie reports it practically unknown in highly-bred closely-housed herds which are rare, and in Mexico Dr. S. E. White, Sedalia, Mo., reports essentially the same conditions.

Dr. Lemay, Ft. Riley, Kansas, reports no tuberculosis.

Dr. J. S. Butler, Minneapolis, Minn., reports the disease rare in that state but observed it frequently in stabled dairy cattle in Ohio, while Dr. Howe, Dayton, O., reports it comparatively rare in Ohio, confined mainly to dairy cattle.

In the southern states cattle are, as a rule, poorly bred, rarely housed or overfed and not greatly used for dairying purposes, while generally considerable exercise is obligatory in order to obtain food, and large numbers are not brought in close contact with each other. Dr. L. Butler, Agricultural College, Mississippi, Prof. A. W. Bittino, Lake City, Fla., and Dr. Cary, Auburn, Ala., report the disease very rare in southern states.

As we approach the central Atlantic states, where many highly-bred cows are kept closely housed, highly-fed and induced to yield milk to their utmost capacity we find the disease enormously increased in frequency and virility. Drs. Clement, Baltimore, Md., Pearson, Philadelphia, Pa., Kilbourne, Washington, D. C., Paige, Amherst, Mass., and Peters, Boston, Mass., all report the disease as highly prevalent among cattle in their region, ascribing its great prevalence to high breeding, inbreeding, excessive lactation, excessive feeding, close housing with unsanitary conditions, etc. Dr. Peters estimates that in New England 1 @ 2% of cattle are tuberculous, while in eastern Massachusetts there is probably 3 @ 5% affected. Dr. Pearson notes it is increasing in Pennsylvania. Drs. Peters and Pearson note a tendency in some cases to recovery but regard this with the same suspicion that we all look upon apparent recovery from glanders—they constitute the greatest danger to the health of other animals.

Dr. Schwartzkopf, Chicago, Ill., offers some suggestions regarding tuberculosis which deserves more than a passing notice.

Foremost in the etiology of the disease he places confinement to hot stables during the summer and winter months, which assists infection. "You know," he says, "that dairymen found out that they got more milk by keeping their cows in doors. Experimental stations have been teaching this and this point has been overdone. Nothing reduces more the vitality of

the animal and the inherent resistance to diseases than lack of exercise. This is one of the reasons why we find so many fat cows tuberculous."

To these deductions I most heartily subscribe and have especially noted for a long time the pernicious teachings of some of our experimental stations founded by our government at a great expense for the purpose, among other things, of fostering our live stock and dairy interests which they are constantly tending to destroy, by destroying the vigor of our cattle.

They teach that a cow yielding 20 or 30 pounds of butter fat per week is exercised abundantly by secreting milk! These stations are founded for scientific experimentation but there is no science in such teaching.

We admit that in a short space of time more milk and butter fat can be taken from a cow with a given amount of food, but the process is contrary to all physiological and hygienic laws and constitutes an enormous drain upon invaluable reserve forces which we can never replace.

If we wish the greatest possible flow of water from a great storage reservoir, destroy the dam in a moment by some powerful explosive and the valleys below get all its contents in a few hours but the reservoir, which it required years of labor and perhaps millions of dollars to build is destroyed and the water accumulated during several months has been wasted.

The no exercise doctrine for dairy cows so warmly promulgated is less rapidly, but just as surely unwise and ruinous; but so long as men without physiological knowledge are paid high salaries to draw conclusions from such experiments, we may expect the evil work to go on, and tuberculosis to extend.

Actinomycosis is rarely seen in New England and the eastern states. Drs. Clement, Baltimore, Md., Peters, Boston, Mass., Paige, Amherst, Mass., Kilbourne, Washington, D. C., Pearson, Philadelphia, Pa., Choate, Lewiston, Me., Howe, Dayton, O., all report it practically unknown except by importation from the western states.

The disease is rarely met with in the southern states, Drs.

Dinwiddie, Arkansas, Jait Butler, Mississippi, Cary, Alabama, and Prof. Bitting, Florida, having observed the disease very infrequently.

The central Mississippi valley, the west and north-west appear to be the favorite regions for the development of this disease. I have seen it assume an epizootic form in Illinois during exceptionally dry seasons, attacking sometimes 30 and 40% of a herd of twenty or thirty animals. Drs. J. S. Butler, Minneapolis, Minn., T. J. Turner, Missouri, Lemay, Kansas, T. E. White, Missouri, G. A. Johnson, Iowa, S. Stewart, Kansas, W. B. Niles, Iowa, A. H. Baker, Nebraska, and Waugh, California, Arizona, New Mexico and old Mexico, all report it very common, and this seems the general condition all along the Rocky Mountains, and these semi-arid states sloping eastward from their base except, it seems, North Dakota, in which Dr. Hinebaugh reports it very rare. In all localities there appears to be a tendency, especially in the external lymphatic type, to spontaneous recovery through suppurative destruction of the affected glands and the iodide of potash treatment seems successful in a large percentage of cases.

It seems to be attributed by common consent, in most cases, to wounds caused by germ-infested hard, coarse food, but this seems to account for the means of infection and geographical distribution of the disease, rather than for the geographical distribution of the germ itself, a question which at present seems unanswerable. It seems that were the germs equally distributed sufficient coarse food would be encountered in eastern states to frequently produce the necessary wounds for infection.

Bursatte has been so largely described as a disease of British India and so scantily, and that only in periodic literature, that its presence is not generally looked for in this country, and far from all veterinarians have given the matter sufficient notice to recognize a case when seen, and it is feared that the reports so kindly sent me are not wholly reliable as to the geographical distribution of this malignant infectious disease.

R. W. Burk, and other East India writers, describe the dis-



ease as prevailing during the rainy season, and say it abates or temporarily recovers upon the cessation of the latter, or upon removal of animals to dry hills. It is scarcely noted elsewhere in the old world.

It is reported in the United States by Dr. Waugh in California, Arizona, New and old Mexico, by Dr. Hinebauch, frequently, in Dakota, by Dr. W. B. Niles in Iowa, by Dr. Stewart in Nebraska and Kansas, by Dr. Mayo in Kansas, by Dr. Y. A. Johnson in Iowa, by Dr. Lemay in Kansas, by Dr. J. S. Butler in Minnesota, by Prof. Bitting in Florida.

It prevails extensively throughout central Illinois. I have seen it in Indiana, and it is met with occasionally in Montana. It rarely assumes a fatal type in the United States, but is persistent. It recovers spontaneously, but, as a rule, upon the approach of cold weather, to reappear at the same part in worse form upon the return of hot weather. While heat and moisture seem to play an essential part in its prevalence and character in India, heat seems the essential factor here and determines its existence regardless of humidity, altitude, food, housing, care or other environments. The source of the infecting agent seems wholly unknown.

In not too severe cases it yields fairly well to treatment when consisting of the destruction of a large part of all the germ-containing tissues, followed by dessicating, antiseptic dressings.

The disease, I have for want of a better name termed enzootic spasm of the larynx, has been very rarely and indifferently described and seems from all reports to be rare in the United States.

Veterinarians Joseph Leather & Sons, describe an outbreak of this disease under the head of lathyrns-poisoning in the horse, and attribute the disease to the feeding of lathyrns sativa, or indian vetch. In this outbreak twenty-one out of thirty-five horses attacked were destroyed. In the same article reference is made to cases of the same lathyrns poisoning occurring in the practice of Dr. McCall.

Dr. Gresswell has seen much of the disease in Colorado, where the lathyrns sativa is not grown or fed.

George S. Witter describes the disease as it occurred in five of his breeding stallions in Colorado, but cannot suggest the cause.

Recently suit was brought in a Montana court to recover damages from the owner of an ore mill by a horse owner who had lost many horses from this affection, and alleged their death was due to poisons in mill tailings, which were scattered over his pastures in irrigating—quite a different cause from that suggested by Drs. Leather.

Dr. Choate thinks it occurs rarely in Maine although he has seen it personally.

Dr. W. B. Niles has not seen the affection in Iowa, but has heard of an enzootic in that state which is probably this disease.

I had the privilege of observing an outbreak of this disease in central Illinois, some years since, numerous isolated cases occurring the same year, but most of them happening on one farm, devoted to the rearing of full-blood and high-grade heavy French draft horses, three or four of which succumbed to the disease out of a band of about forty.

Over the entire central portion of the state a large part of the corn (maize) had been frozen before ripe, and wet weather following, the frozen ears rapidly underwent putrefaction, and being worthless were left ungathered in the fields, and live-stock permitted to run in the fields after gathering the valuable corn, ate freely this frozen, putrefying maize; and it was only in animals allowed in such fields, or permitted to eat this damaged corn that I observed the disease. Even on the farm where I prevailed so extensively, only those running in the field were affected, while those kept in stable and fed on corn gathered in the same field, but carefully selected and not damaged, remained sound. Also four or five animals, which were markedly affected, and could run but a very short distance without severe laryngeal spasms, even causing the animal to fall, if urged on; recovered upon being removed from field and food changed.

I naturally referred my cases to the eating of the putrefying maize. They had no access to lathyrns sativa, vetches, pea-beans or other leguminous plants.

The etiology of this disease seems shrouded in the deepest mystery, and there is nothing positive as to any influence exerted by climate, season, altitude, housing, etc., but probably to some unknown element occurring accidentally but rarely, and locally, in food. My own cases and those of Drs. Leather and McCall suggest some form of mould; due in, my case, to frozen putrefying maize, in the London and Edinburgh outbreaks possibly to a mould multiplying on the vetches while somewhat damp on shipboard, but the Montana and Colorado cases tend to abrogate this idea and rather suggest a bacterial contamination of food not due to excessive moisture and not confined to grains, since some of these cases occurred on the range.

*Fistulous Withers and Pole-Evil.*—These two forms of the same disease show marked peculiarities in distribution. It occurs in every part of the United States, regardless of temperature, altitude, humidity, housing, food, breeding, or other environments, but it varies greatly in its prevalence and character in different localities, and the belief of veterinarians as to etiology changes with prevalence and location.

In the states east of the Mississippi River, the disease is reasonably frequent, but occurs as isolated cases, almost always traceable to trammation, exhibiting little or no tendency to spontaneous recovery, but yielding somewhat tardily to surgical treatment.

In the southern states east of the Mississippi River, the disease is more common than in the more northerly states, and its increased frequency is variously explained. Some say it is because of the greater number of mules, which have a great tendency to annoy other animals and especially to bite the withers roughly and persistently. Others attribute the prevalence in a great measure to the carelessness of negro owners in the matter of low stables and ill-fitting harness and saddles.

In the states west of the Mississippi River, with but few ex-

ceptions the disease breaks out frequently in enzoötic form, and at once suggests other causes than traumatisms, although these admittedly cause isolated cases here as elsewhere.

Dr. A. H. Baker, of Chicago, viewing the disease from a distance, attributes its wide prevalence in the west to bites and rough handling by other horses when in pasture. Dr. Waugh, of Pennsylvania, observing the disease in the extreme southwest attributes it to rolling on stones due to the torments of insects.

But these reasons do not explain the sudden appearance of the diseases in a large per cent. of horses over a certain area and its disappearance again in the course of a few years.

In Montana it prevails very extensively now, some cases in unbroken animals on smooth ranges devoid practically of serious insect pests. But it is more common in small bands of horses kept in pastures in the valleys, not worked, ridden or stabled, and having no perceivable reason for suffering from any unusual number of traumatisms—yet it will suddenly appear in two or three or even six or eight horses in one small band, in some as poll-evil, in others as fistulous withers and not infrequently both appear at once in the same animal, or one may closely follow the other. Both show a very marked tendency to spontaneous recovery through suppurative processes. It occurs in the stable, too, as well as in the field, and I have seen poll-evil and fistulous withers appear simultaneously in isolated horses kept in good stables, with good care.

*(To be continued.)*

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## A PRACTICAL USE OF GUTTAPERCHA IN VETERINARY DENTAL SURGERY.

BY R. C. MOORE, D.V.S.

A paper read before the Missouri Valley Veterinary Association, October 3, 1894.

For some years past I have successfully used Guttapercha in certain dental operations in a manner which I have never found any account of in our literature or other sources. So I thought it might be of interest to the profession.

In the summer of 1886 I was called on to treat a gray gelding six or seven years old, that was suffering with caries of the upper fourth molar. The tooth was nearly gone, and the maxillary sinus was completely filled with hay and other feed in a decaying condition, which had passed there through the open alveolar.

I removed this as well as the remainder portions of the caried tooth, and found the caries had extended to the palatine process of the superior maxillary, eating a crescent shaped cavity opposite the alveolus as large as the half of a half-dollar.

I cleaned out all the diseased bones and gave an unfavorable prognosis on the grounds that the caried palatine plates would not heal. Thus leaving a communication between the mouth and maxillary sinus, allowing the latter to fill with feed.

The horse, however, done fairly well for some months. But during the following winter he lapsed into the same old or worse condition than before the operation. The cavity remained open and the sinus was full of food. Some of which would be discharged through the nose. I gave the case up as incurable.

During the following winter the horse passed into the hands of traders and I soon lost track of him. Some time after this my attention was attracted to what Prof. Williams says in his *Principles and Practices of Veterinary Surgery* in regard to some parties using guttapercha to fill the alveola after removing the tooth.

I reasoned from this that it might be possible to close this cavity in this manner, and so decided to try it if ever an opportunity presented itself. During the following summer a patron of mine traded for the same gray horse, and on examination I found him to be in about the same condition as the fall before. I procured some guttapercha and proceeded to operate as follows: I opened the old trephine hole and cleaned the sinus by irrigation and scraped off all diseased bone. Then I took three sheets of the best pink guttapercha put up for dental use, and put it into a pail of hot water (nearly boiling). As soon as the guttapercha was soft, I took it in my hand and formed it into a ball or egg-shape, so I thought it would about fill the cavity.



Then leaving it in hot water (for it very soon hardens after taking it out of the water), I got the patient ready by placing the speculum in his mouth, and the parts cleaned. Then taking the ball in my left hand and passing it into the alveola through the mouth I pushed it upward and at the same time, with one finger of the right hand in the trephined hole, I pressed down on the upper end of the ball and by this means pressed it outward until it filled the cavity perfectly and formed a good flange above and below to prevent the plug from slipping, and treated it as a single wound. It readily healed, and to all outward appearances the horse was well and remained so for five or six years, at the end of which, notwithstanding my repeated warnings, they allowed the lower tooth to become so long as to push the plug up into the sinus and he was as bad as ever.

Since then I have operated on several of this class in the same way, and always with success, except on one horse, when I tried to substitute dental rubber for guttapercha, and after two failures I had to return to the guttapercha, which proved successful. The rubber was too soft and would not harden sufficiently in the mouth to withstand the pressure of mastication. None of these cases showed such extensive caries of the palatine process as the first, but rather a distinction of the alveola process leaving the bone exposed, which did not seem to possess the power of closing up. This may be due to the large size of the cavity, which contains such a large quantity of food as to become a constant irritant. In one case that had been well irrigated several times daily for many months. And on trephining I found the tissues in a clean, healthy condition, the mucous membrane of the sinus having united with that of the mouth through the cavity formerly occupied by the tooth. I operated as above with the same results.

And now, after an experience of eight years, I never hesitate to resort to its use in all cases when the alveola does not show a disposition to readily heal. And I believe I can safely say that few operations have given me better satisfaction than these.

## TEXAS OR SOUTHERN CATTLE FEVER.

BY DR. T. A. BRAY, D.V.S., Inspector of Abattoirs No. 46.

A paper read before the Missouri Valley Veterinary Association, October 3, 1894.

Texas or Southern cattle fever is a disease of the blood, causing a destruction of the red corpuscles. A microorganism, which lives within the red corpuscles, is the destroying power

The infection is carried by newly hatched ticks, which inoculate susceptible cattle, directly into the blood. Native cattle can also be inoculated by the blood of Southern cattle by intravenous, or subcutaneous injection, as the microparasite is always present in Southern cattle, even if they have been away from Southern pastures for a few years.

All Southern calves go through a natural inoculation by the ticks, at which age the death-rate is very small; when I say all Southern calves, I think I am right, as the ticks are pretty well scattered all over the territory, where the winter is not severe enough to destroy them.

After they are once inoculated, they are generally safe, as far as the Texas fever is concerned, as the system then seems to be indifferent to the virus. The incubation period is about six to ten days after direct inoculation, but this period may be extended three or four weeks at some seasons of the year.

There are two stages of Texas fever: mild and acute. The mild stage occurs in autumn, is not very fatal, in fact the blood would have to be examined for the microorganism, in order to tell if the disease was present, as the general symptoms are absent.

The acute stage occurs during the hot summer months and is very fatal, especially to mature and aged susceptible cattle. During the winter months, from December first to March first, there is no danger from Texas fever, as the ticks cannot exist in the territory where the susceptible cattle are.

*Symptoms.*—Dullness, loss of appetite, cessation of rumination, high temperature, from  $105^{\circ}$  to  $108^{\circ}$ F., bowels constipated during high fever, and great emaciation following high fever.

After the above symptoms are noted, the blood becomes very thin and watery, which can be easily detected by making small incisions in the skin; bloody urine is passed from the bladder. In addition to the above, ticks are generally present, located usually on the inside or back part of the thighs towards the tail, the skin being thin in those parts. They are also found on other parts of the body.

The bloody urine is not due to discharge of blood from the kidneys, but to a filtration of the coloring matter of broken-down red corpuscles. Temperature continues high until the disease terminates fatally or in recovery, when in either case it may fall below normal, but more apt to in case of a fatal termination. The evening temperature is the highest for three or four days, then the temperature will stay high night and morning until end of the fever—respiration 60 to 100, pulse 90 to 120 and weak. If case terminates fatally, or in recovery, the respiration often falls below normal, after the high fever has subsided.

There are three or four leading features, which enable a person to make a correct diagnosis—the presence of ticks, bloody urine, watery blood and high temperature. In addition to the above the examination of the blood under the microscope, to find the microparasite in the red corpuscles, is a valuable aid, but as this is not practicable to the general practitioner, I will not go into details. Duration of disease in summer months is from six to twelve days.

*Post Mortem.*—The outward appearance of the skin does not show anything, except the presence of ticks.

The fat and subcutaneous tissue are often a light lemon color. Heart is sometimes spotted with petechia in advanced stages.

Spleen very much enlarged; some that I have weighed going up to  $8\frac{1}{4}$  lbs., while the normal spleen is about 2 lbs.—when cut into it presents a dark brownish red color. The peculiar enlargement is due to engorgement with red blood corpuscles.

Bile in gall bladder is changed considerably, being thick, of a yellowish brown color, and a great deal of it.

Liver is enlarged, bile injected and congested, the surface being somewhat tinged with a very light yellow.

Kidneys are enlarged, and of a dark redish brown color.

Bladder usually contains bloody urine, if the case has advanced far enough. Most of the other organs are free from changes to be observed by the naked eye. In some cases I have observed blood extravasations in abdominal cavity.

*Character of Ticks.*—*Boophilus bovis*, after Dr. Cooper Cur-tice. After the ticks are hatched out they crawl on the cattle, get a good hold, and arrive at adult age in about three weeks, then drop off and commence laying eggs. The laying continues from eight to fifteen days, according to the temperature—each tick will lay about 2,000 eggs. The eggs take from three to six weeks to hatch out, according to temperature—the time for one generation of ticks is from six to nine weeks.

Susceptible cattle can be inoculated by ticks hatched artificially. Newly hatched ticks will live for an indefinite length of time on the ground. Ticks generally attach themselves to parts where the skin is thin, such as the inside and back parts of the thighs.

*Treatment.*—Little can be said in regard to treatment. After the animal is known to have Texas fever, give some good febrifuge, keep under shelter with plenty of fresh air and pure water, and some nutritious laxative food. Look for ticks daily, remove them when found and destroy them. The susceptible cattle that are inoculated will have the fever, but will not infect other cattle after the ticks are removed; but it is not safe to have other susceptible cattle around, as the ticks may accidentally drop off and lay eggs, which will hatch out in time and do some damage.

*Conclusions.*—When all ticks are removed from Southern cattle, they may mingle freely with susceptible cattle, without any danger of communicating Texas fever.

Adult egg laying ticks have been scattered on pastures, and susceptible cattle placed on such pastures have contracted Texas fever in absence of Southern cattle.

If Southern cattle are driven through the country that is not infected, they lose the power to infect, as all the mature ticks will drop off in about four weeks, leaving the Southern cattle harmless; but should susceptible cattle follow the trail three or four weeks after the Southern cattle, there would be a good many cases of Texas fever. If Texas cattle and susceptible cattle are placed together, the natives will not contract Texas fever under about four weeks, as it will take about that time for the adult ticks to lay their eggs and have them hatched out.

Sick natives may be a source of infection, when ticks are present. Other means have been tried to inoculate susceptible cattle, such as feeding animals on ground ticks, spleen pulp and on grass, where ticks were known to exist, but all failed. A few other animals beside cattle have been tried, but proved insusceptible to the disease by direct inoculation; sheep for one, as they take after cattle somewhat, normal temperature of cattle 101°F., respiration, 18 to 30, according to temperature of air and age of animal, pulse from 55 to 70.

*Inspection.*—The Bureau of Animal Industry has been very successful in preventing Texas fever from spreading over the country, where susceptible cattle are. Inspectors are placed at different stations on the line of the infected districts to see that all cars are marked Southern cattle, also to see that cattle from infected districts are not driven into the territory not infected.

When Southern cattle arrive at destination, they are held in quarantine yards; the cars then taken to a station to be thoroughly cleaned and disinfected in the presence of an inspector. Any out-breaks that may occur are reported and taken care of in a way to prevent any spread if possible.

I think great credit is due Dr. D. E. Salmon, who is chief of the Bureau of Animal Industry, for his untiring efforts in ferreting out the cause of diseases and the prevention of the same.

Parts of this article are from reports of the Bureau of Animal Industry, and the rest from practicable observations at the packing houses.



## THE DIAGNOSIS OF TUBERCULOSIS, DEALING ESPECIALLY WITH THE DOSE OF TUBERCULIN TO BE USED IN TESTING FOR TUBERCULOSIS.

BY F. L. RUSSELL, V.S.

Prof. Veterinary Science Maine Agricultural College, and Experiment Station, Orono,  
Maine.

A paper read before the Maine Veterinary Medical Association.

We find that most of those who have published their experience in the use of tuberculin have used a much larger dose of the drug than we have found necessary, and we wish to bring the matter briefly to your attention in a comparison of results as it is a matter of general interest and some importance.

In this country the available tuberculin is mostly from one of two sources. It is either that prepared in Germany by Dr. Libbertz, after Prof. Koch's formula, or that made in this country by the Bureau of Animal Industry at Washington, D. C. This latter preparation is a dilute tuberculin of about one tenth the strength of the imported drug. Whether the strength of either brand is uniform depends upon the care and skill exercised in their manufacture, and we will assume that all reasonable care is used as we have no convenient method of testing them. But we find that from .2 to .5cc of tuberculin for mature animals is generally recommended, while our own experience with a dose of .05cc or even .06cc have been very satisfactory.

In the New Jersey State College herd the first cow tested and one tested at a later date were given .5cc of tuberculin each. Thirty-five cows were given .15cc of tuberculin, and three animals were left untested for want of material. In one case reported in Pennsylvania, .25cc was used with negative results, although an autopsy proved the cow to be tuberculous, and the failure was attributed to the smallness of the dose.

The point I wish to make is that the large dose quite generally used has no advantage over a much smaller one, but on the contrary, some evident disadvantages. If thirty or forty animals as they will be found in a breeding herd of all ages, can be tested

with .1cc of tuberculin with as good results as when the same amount is used for four or five, the matter of expense alone is worth considering. It is well also to bear in mind that the larger the dose the greater the possibility that well animals will react.

In June, 1892, when we first used tuberculin, we were uncertain about the dose proper, but finally decided to try .05cc and tested a herd of five mature cows, of rather more than average size, giving that dose.

To our great surprise, where we had only suspected one, four reacted decidedly to the test. This unexpected result led us to believe that we might have used too large a dose. So, before killing these animals we tested another herd of twelve cows, dividing them into two lots of six each. One lot we injected with .05cc tuberculin to a cow and the other lot with .25cc. Five of these twelve cows gave decided reaction and the diagnosis in each case was verified by the autopsy. From the smaller dose the highest temperatures obtained were 105. 5, 105. 1 in fourteen hours from the time of infection. From the larger dose 106. 7, 103. 8, 105. 5, in fourteen, sixteen and eighteen hours. This trial tended to confirm our opinion that .05cc of tuberculin is at least sufficient to test a mature animal for tuberculosis; and in subsequent tests we have not exceeded that amount, but have used from .05cc to .015cc according to the age and size of the animal tested.

In all we have had thirty-one animals react under the test. Autopsies were made in each case and the diagnosis was uncertain in but two instances. Most of the animals were but slightly affected. Five or six of them would be considered advanced cases and were readily diagnosed by a physical examination. Two of the thirty-one were calves that were injected with .015cc of tuberculin each. The thirty-one animals together were injected with less than 1.4cc of tuberculin.

Now to make a general comparison of results with some of those who have used a much larger dose.

We find that the average maximum temperature in these

thirty-one cases was 105.4, and the average number of hours after injection before the maximum temperature was reached was fifteen hours.

In the Wisconsin Experiment Station herd from .4cc to .1cc of tuberculin to an animal was used.

The average highest temperature of the twenty-one that reacted under the first test was 105.5, and the average time to the highest temperature was fifteen and a half hours.

The New Jersey State College herd was tested with an average dose for mature animals of .31cc.

The average highest temperature of twenty-five animals that reacted was 104.9 in an average time of sixteen hours. One cow in an advanced stage of tuberculosis was given .5cc, but failed to react.

In December, 1893, the Vermont Experiment Station herd was tested with from .2cc to .3cc to each mature animal.

Twenty-three animals reacted with an average highest temperature of 105.8 in sixteen hours.

I might go on adding to these figures the record of other herds, but perhaps this is sufficient to show that the reaction is as decisive and as quickly obtained with a small as with a large dose of tuberculin.

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## ACUTE CEREBRAL INFLAMMATION EMBRACING CEREBRITIS AND MENINGITIS.

By C. F. DWINAL, D.V.S., Bangor, Me.

A paper read before the Maine Veterinary Medical Association.

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MR. PRESIDENT AND GENTLEMEN:—"To comply with a request from the president, Dr. Bailey, that I should prepare a paper upon some subject to be chosen by me, I have selected Acute Cerebral Inflammations embracing Cerebritis and Meningitis, which I will submit to you for your consideration.

I do not propose in this to speak much from experience but to help to bring the disease before your mind. Acute cerebral inflammations are not so commonly met within practice as many

other diseases, and perhaps it was for this reason why I selected this subject.

Under this heading we have encephalitis cerebritis or inflammation of the substance of the brain, and meningitis or inflammation of the coverings of the brain. The brain, the seat of animal life, is situated within the cranial cavity and covered or protected by three membranes, namely, dura mater, which lines the cranial cavity; pia mater, which covers the brain in all its convolutions, and the arachnoid, which is between these two. Inflammation is brought about in the brain and in these membranes in several different ways, as the result of direct violence to the bones of the cranium or some disease of those bones, as the result of some specific fever, from the entrance into the system of some specific virus, as in cerebro-spinal fever, or from exposure to the rays of the sun. The most common cause, however, is from injuries to the cranial bones or disease of them, although we frequently see a sympathetic cerebral inflammation arising from some dietetic error.

Much time has been spent in endeavoring to discover some diagnostic symptoms by which to distinguish cerebral from meningeal inflammation with some success; but we find that inflammation of the meninges quickly extends to the brain, and vice versa; therefore the distinction is not so desirable only so at the outset.

Some of the diagnostic symptoms are those in Meningitis: when the membranes are primarily affected we see the animal in a very excited condition, frightened at every object and avoiding the attendant in every way possible; he is startled at any noise or bright light penetrating the stall; in fact, spasms or convulsions, pain and delirium are the general features of meningeal disease; following these symptoms are diminution or loss of nervous functions.

In cerebral diseases we find the reverse of these symptoms, for from the outset or very early stages there is loss of one or more of the nervous functions, such as paralysis anæsthesia or loss of memory. The animal stands in a sleepy manner, with

its head pressed against some firm object and unmindful of anything going on about him. The most common form of cerebral inflammation is due to some dietetic error causing a sympathetic affection; this form may be distinguished from cerebral disease from other causes by one symptom in particular, that is the normal, or even subnormal, temperature, for in the former there is a rise in temperature.

Two cases which came under my observation will illustrate meningitis and sympathetic cerebritis.

The first, a case of acute meningitis, was in a black gelding which I saw about seven o'clock in the evening. I was told that in the early afternoon he had been taken away to be clipped and being a nervous animal, had caused them some trouble, and in endeavoring to punish him had struck him with something, and had placed upon his head some kind of a controlling bridle and had thrown him down.

When I arrived he was in a stage of great excitement, so much so that they warned me about going into the stall, which was roomy box, saying that he was crazy and would jump on me.

I finally got up to him and put my hand on him; found his head very warm, pulse quick, eyes staring and bloodshot, with pupils contracted owing to his great anæsthesia. I was unable to take his temperature. There was much pain about the head; his appetite was very good, however, and continued so throughout his sickness.

In a few days this delirium changed to the comatose condition, and the animal stood in a corner unmindful of anything. This, however, gradually wore away, and the animal made a good recovery.

Case number two; instance of sympathetic cerebral disturbance was in a bay mare which had been working constantly on a farm; had been fed meal in large quantities for a few days and suddenly refused to eat and drink, and soon began to bore her head against the wall; eyes dull and indifferent to everything, except occasionally she would thrash her head, thus wounding it greatly and then remain quiet again.



Her eyes and lips were swollen very much when I saw her, pulse was hard, full and slow, temperature  $101^{\circ}$  F, respiration stertorous.

With difficulty we got her from her position in the corner. By giving her a brisk cathartic and local applications to head she very soon recovered. She had been affected this way once before, so I was told, but after this, having advised the owner not to feed any more meal she has never been affected.

These two cases, I think, very well illustrate the two common diseases coming under the subject which I have chosen for my paper this evening.

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### EVERSION OF THE UTERUS.\*

By. W. H. RIDGE, V.S., Trevese, Pa.

Read before the Pennsylvania State Veterinary Medical Association.

*Syn.*—Prolapsus of the uterus; inversion of the uterus.

*Def.*—It is the passage of the uterus out of the pelvic cavity, external to the vulvæ. It is the turning of the uterus inside out.

*History and Causes.*—It happens at the time of parturition, immediately following or within two or three days after parturition.

It can only happen when the cervix is dilated. Mostly seen in the cow, very rarely in the mare. (The chief object in this paper is to study it in the cow).

It may occur after a short, easy parturition, but is mostly dreaded when labor has been difficult, and the foetus has had much traction upon it.

Retention of the placenta is a fruitful cause, spasm of the longitudinal muscular fibers of the uterus, tympanitic condition of the intestines. Excessive after-pains. Injudicious traction on the foetal envelopes of a flaccid uterus, or pressure of the intestines, against the horn of a flaccid uterus, starting the inversion at this point of the uterus. Constipation is often a cause.

*Lesions.*—Are those of the uterus hanging external to the

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\* This paper did not reach us until late in October—hence its late publication.

vulvæ, the mucous membrane being external, the cotyledons being exposed, also the cervix (marking the uterus from the vagina) being external forms a ring around the base of the tumor. At the bottom part, close to the vulvæ, we find the opening of the urethra. We often have all or part of the foetal envelopes attached to the cotyledons. Many cases we have rupture of the mucous membrane with hæmorrhage. There may be gangrenous patches—rupture of the uterus may occur with the passage of the intestines through the rent.

*Symptoms.*—The symptoms are of value to us to guard us against its occurrence. After labor (the delivery of the calf) the animal soon begins to strain, and to do so nearly continuously the back remaining arched; soon a tumor appears between the lips of the vulvæ, this being some part of the uterus; with a few more efforts the uterus is passed out entirely. After it is out the animal mostly is quiet for a short time, often stands eating as if there was nothing amiss, then there are cases where the animal strains for more than a day before the uterus is everted or perhaps the vagina is everted a longer or shorter period before the uterus. In other cases at the time of the eversion, we have the animal lie down and be unable to rise, either due to paralysis or hæmorrhage; if due to hæmorrhage we have tremors, animal panting, yawning, and struggling, also a pale mucous membrane and a weak pulse.

*Complications.*—We may have the paralysis due to injury to nerves; perhaps she is unable to rise due to the great pain, or from excessive exhaustion or from hæmorrhage; later we may have septic infection, peritonitis or gangrene of the uterus in part or whole. We even have a rupture of the walls of the uterus with the passage of the intestines through the opening.

*Termination.*—With no treatment death must take place, as the uterus will not be replaced spontaneously, and it would be very rare indeed to find a case where the uterus sloughed off and the animal recovered.

The diagnosis is very readily made by the large tumor external to the vulvæ, with the cotyledons exposed, and the

circular ring of the cervix showing as the division between the uterus and vagina. In eversion of the vagina while the tumor may be large, it has a circular striated appearance, and in the center of the tumor we find the cervix.

The diagnosis is also to be made from eversion of the bladder and hernia of the bladder, tumors and cysts.

*Sequelæ.*—Chronic eversion of the vagina may have metritis, sterility, nymphomania or septicæmia following.

*Prognosis.*—In the cow, with proper treatment, the prognosis is good. If on examining an animal we find her quiet, not straining, we would look for a favorable recovery, while if the uterus was lacerated, with excessive hæmorrhage and severe straining, it would be much more guarded. I think the mortality is about 8 per cent.

*Treatment.*—The treatment has been divided into five stages. 1st, preliminary treatment; 2d, reduction of the uterus; 3d, retention of the uterus; 4th, after treatment; 5th, amputation of the uterus.

Preliminary treatment: it is important to have the cow standing, as the uterus is much easier to replace in the standing position; if we are unable to make the animal stand we may raise the hind-quarters by means of bags of straw, or we may attach ropes to the hind legs, then turn the animal on its back, draw the hind parts up by passing the rope over a beam or pulley; it is very rare that this procedure will have to be resorted to. The next is to clean the uterus by removing any fœtal envelopes and foreign substances, by washing it in a strong creolin solution. Now, if the animal strains much, we had better give an ounce of chloral, then put her in a narrow box stall. It is important to have two assistants placed on each side of the uterus to lift it by means of a cloth, making traction upwards and forward, making the part of the cloth on the horns the tightest.

*Reduction.*—After your assistants have raised the uterus on a level with the vulva, you commence to replace it by first commencing at the vulva, replacing the vagina, use both hands edgewise, one hand each side of the vagina, tips of the fingers

in a superior direction, and the little fingers anteriorly. After replacing about a hand's breath we partly close the hand, using the knuckles; replacing between the straining of the animal, we find it best to use pressure on one side at a time, holding all we gain until the cervix has entered the pelvic cavity, when, by a quick move, withdraw one hand, and place it against the most distant part of the tumor, but outside of the cloth, your two assistants pulling forwards on the cloth; by pushing the cloth in with the uterus you strengthen the mucous membrane, making less danger of rupturing or lacerating its surface, but often, after replacing the vagina and withdrawing the hand, the animal makes one desperate expulsive strain, when the whole uterus is thrown out again. We may have this to occur several times before we succeed in returning it properly, but after trying a few times and not succeeding I would administer more chloral, or rather put them under the influence of chloroform, the disadvantages of anæsthetics are we have to have the animal in a recumbent position. Washing the uterus off with a chloral solution, or ice water may assist us. If the straining still persists, and we cannot overcome the straining, then perform tracheotomy, to get rid of the pressure of the abdominal muscles. We need no tube for this purpose. If the uterus is very large owing to the large amount of blood contained in its blood-vessels, it is best to have the assistants cross the cloth, the one on the right side taking the ends of the cloth on the left side, making steady pressure, keeping the distal end the tightest; by this means drive as much of the blood into the body as possible. Or we may bathe the uterus in cold water and bandage with a wide elastic bandage, but we will not find one case in ten that will require the bandages.

After you have returned the uterus, explore the uterine cavity the full length of your arm, to see that no part of the uterus has remained inverted, or tucked in upon itself, as the turning in of the end of a glove finger.

You will see stated that we are to smooth out all wrinkles in the mucous membrane I think this of little consequence, as

you can smooth out all wrinkles in the body, and leave the end of a horn tucked into and towards the body, and you will have the animal strain until the whole is again everted. After every part is in the best possible position we can place it. I then pour pure creolin on my hand and pass my hand over the mucous membrane of the uterus, as I think it bad practice to inject fluid disinfectants at this period, as the fluid often starts up the straining, while the creolin mixes with the secretions, making the cavity aseptic.

*Retention.*—There are several means of retention, but I have decided upon two ways as being the best and safest: they are sutures and the pessary.

Of course there are many cases that by raising the hind parts and letting the animal stand on manure, etc., will be all that is required; also the application of a truss might suffice, but I would never trust a case to these methods. I have used the pessary in about one half of my cases, with an occasional failure. Once by the pessary rupturing the uterus, and twice by the pessary being thrown out with the uterus, but in most cases it answers very well. I will first describe my mode of application.

An old spade or manure fork handle make a good pessary. Cut the handle off about eighteen inches in length, pad the end with oakum and cover with a cloth, making the padded end about four inches in diameter; cover the whole pessary with carbolized oil. Have a rope about forty feet in length, tie the middle of the rope to the handle of the pessary, place the padded end in the uterus, pass the ropes each side of the tail, tie a knot over the croup, pass the ropes to the withers, tie them together, now pass the rope each side of the neck, tying them together in front of the sternum, pass the ropes between the front legs, then each side of the body, and through one rope that runs along the back (each rope taking a separate rope along the back). Now pass the rope between the udder and hind leg on each side, then up to the handle of the pessary, drawing the pessary into the uterus until the handle touches the vulva. By tying a pessary in this manner it will rarely be thrown out or injure the animal.



It is very seldom that a pessary need be left in longer than three days, or it can be taken out the next day, if there is no straining. The next treatment is the sutures. We want strong sutures: heavy muslin one inch wide makes good sutures, or better, tape one inch wide. The frog seton needle is the proper instrument to put in the sutures with. The tape should be a little over a yard long, and be sure that there are no weak places in it. Now thread your needle, pick up the skin over the point of the right schinue opposite the superior third of the vulva, pass the needle through, taking about one inch of the skin, pull the thread from the needle, then withdraw the needle, and pull through the suture, thread again and pass through the lips of the vulva, in the superior third, in the same manner as was done through the skin, then pass through the skin over the left ischium, then pass the suture over to the right side again without suturing the vulva, then pass the suture through the same amount of skin over the ischium opposite the inferior third of the vulva, then pass through both lips of the vulva in the inferior third, then through the two ends of the sutures across the vulva and tie in a secure knot. This will stand all the straining the animal is pleased to give it. Wash the genital parts with a disinfectant solution. these sutures can be left in for any reasonable time. I have had them in one week many times, and I have never had them to tear out or any complication, except once, where the suture broke, not being strong enough, and had to be replaced with a stronger one.

If we have a frog seton needle this is the easiest, quickest and best way we can retain the uterus. I have had animals to strain until I could see the uterus pressing between the sutures, but the next day be all right.

*Therapeutic.*—A few doses of canabis indica often stops the straining. Opium is apt to cause a constipation and prolong recovery. But chloroform and ether are useful at times. As a preventative measure, I think chloral or a mixture of ether camphor canabis indica are good, also chlorodyne has been credited with doing good; of course one should guard against the bowels

becoming constipated. I think the therapeutic measures are more indicated in the complications which with amputation would make this paper take up too much of the time of our meeting.

### PATURIENT APOPLEXY IN THE COW; A NEW METHOD OF TREATING THIS DISEASE SUGGESTED.

By R. H. HARRISON, D.V.S., Atchison, Kansas.

A paper read before the Missouri Valley Veterinary Association, October 3, 1894.

The practitioner having city or country practice is familiar with this condition among dairy stock, and knows with what poor results he successfully treats it. It is an affection of milch cows, and, as a rule, affects those that are plethoric and deep milkers, who have an *easy*, rapid labor. It is rare to see a case before, during or after parturition in a lean animal, although she may be a deep milker; or in a fat one, where the labor is difficult and prolonged.

Many theories have been advanced as to the cause of this condition, both in the cow and the state similar to it in woman.

Lever, Braun and Frerichs ascribe the condition in woman to an excess of albumen in the urine, together with a retention of urinary elements in the blood; this is not true of the cow; in rare cases we have traces of albumen in the urine during pregnancy occurring during the latter stage, but I have been unable to find any during the attack or after this disease. If the urine has been retained very long in the bladder, it becomes very strong of ammonia.

Other investigators consider the condition due to septic poisoning from the entrance, through lacerations in the os and cervix of septic material. I have seen but one case where an abrasion was found, although I always look for trouble, which is treated if found, antiseptically.

All will agree with me that there is an increased arterial pressure during pregnancy, and it is reasonable to suppose that when the foetal and maternal circulation is so quickly discontinued,

and the womb which has been surcharged with blood, contracts after the expulsion of the fœtus; and at the same time as the fœtus is expelled, the intra-abdominal pressure is much lowered, there must be an excess of blood thrown back on the mother. This is manifested by the hyperæmia of the brain and spinal cord; this latter condition is demonstrated by post-mortem examination, when it is found that the hyperæmic condition has passed on to inflammation, and as a result we find a collection of serum in the ventricles of the brain, and often in the meninges as a result of stasis.

The patient very shortly after calving, as a rule, lies or falls down, and is in a state of delirium, which quickly passes into a condition of coma, becoming more and more profound, until death intervenes from paralysis of the centers of respiration and circulation, or from carbonæmia. It is a noteworthy fact that in this condition *both* the *voluntary* and *involuntary* muscles are more or less affected, a gradual extending of paralysis becomes more and more complete.

The treatment laid down in human and veterinary works is depletion by means of cathartics; venesection has been for a long time discarded. It is well to bear in mind the great magnitude of the stomachs in cows, and that they are in a state of partial or complete paralysis, so that enormous doses of acute cathartics have no effect, or their action is to tardy.

I have followed a method of treatment during the last few years which has a percentage of 60% when I have been able to utilize it. Cases otherwise treated 80% have died.

I wish to simply lay the procedure before the association with the results obtained, as a suggestion, so that if others try it and get results, we may have gained a means of saving valuable dairy stock, and help our profession to something new and useful.

*Procedure.*—Animal treated in natural position. The bladder is emptied carefully by catheter, the fæces in rectum and lower bowel evacuated by copious enematas, the nostrils and mouth cleaned free from mucus and dirt. An application of ice

and salt made to the poll, a solution of salt and water, 10 grains salt to OI. of water, heated to the temperature of 100° F. is injected into the jugular vein, the point of selection being the upper third of the neck.

The apparatus used for this purpose is Dieulafay's aspirator, manufacturers, Codman & Chentleff, of Boston; this is Patain's modification of Dieulafay's aspirator.

The needle is introduced into jugular vein with point directed toward the heart. *Care* being taken that no air is allowed to enter, after the solution has been injected remove the needle, and the wound or puncture may be compressed with the finger for a moment,

It is a physiological fact that the blood maintains a constant specific gravity, which if increased, the fluid relieves itself, by pouring out through its depurative passages the excess.

In from twenty minutes to one half hour the pulse from slow and full becomes increased in action almost tumultuous; temperature rises to 102°. Respiration quickened, and bowels begin to move, the muzzle becomes moist, and later the body is bathed in perspiration. Purging may ensue, but I have seen but two cases where it became alarming and then it was checked in the usual way. The animal gets up, and although groggy and bewildered for a short time, begins to notice and care for her calf, and to eat. I have found that one attack does not necessarily predispose an animal to another at the next time of her coming in, although if in the same condition at the time, I have seen it occur.

I think care in feeding in plethoric cases is a wise precaution to take in avoiding an attack of this trouble. All grain should be withheld for a time before calving. This condition I have not witnessed in mares. In one case I attended it was a question between it and azoturia.

As to the condition occurring during or previous to labor, I think the cases are rare. I have seen but two cases which occurred before and one during labor. In the first two, delivery was induced by artificial means, one recovered rapidly, while the

other was fatal. In the case occurring during labor a dead foetus was found, with head protruding from the vulva, with the fore extremities turned backward, which was removed, the mother at the time was in a state of profound coma, which ended in death.

It has been suggested to irrigate and disinfect the uterus in this condition, but I would not advise it unless by manual examination the uterus is found lacerated, which I have very rarely found. The placenta, which is very seldom retained, should be removed, and the vulva and buttocks rendered aseptic by antiseptics.

I have seen very disastrous complications from irrigating the womb of the cow, it will be remembered the horizontal position of the organ, and it is common to find after this procedure a metritis or endometritis set up by some of the fluid which has been left.

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## REPORTS OF CASES.

### A LARGE ABDOMINAL HERNIA SUCCESSFULLY TREATED.

By E. E. BITTLES, V.S., Union City, Pa.

Thinking it might be of interest to some of my colleagues I relate the following case: I was called about seven o'clock in the morning to see a valuable horse owned by Jas. Fosburg, of Union City, Pa. During the night the horse had been kicking and got straddle of a post having a top three by eight inches square, and five feet from the floor. But when found in the morning was standing pawing and sweating, and seemed to be in severe pain, and a hernia as large as a half bushel measure showed in the left flank. The hair was rubbed off, and the integument was black and body bruised.

I told the owner I thought it rather a doubtful case, but he insisted on my operating, so I led him out on the lawn, put the hobbles on and cast him with his left side up. Then I washed the parts well with a solution of creolin one to twenty. I then placed my hook knife, sutures, sponges, etc., in a solution of creolin of the same strength. Then placed a strap around the



left hock, so an assistant could roll him in any position that it might be necessary to have him. I then took a two bushel grain sack and placed in it a sponge that I had saturated in two ounces of chloroform, then drew the sack over the horse's head, holding it close around his head. In one moment he was thoroughly under the anæsthetic.

I gave an assistant the sack, and told him when the horse began to wink, to pull the sack over his nose for a short time. I then took my hook knife and made an incision about twelve inches long over the hernia, just cutting through the integument, and with my finger I broke down a small quantity of cellular tissue, coming onto the pelvic flexure of the great colon, which I returned. I then returned a number of feet of the small bowels and the floating colon.

I saw I had a rupture of the abdominal muscles and tunic, commencing within about two inches of the linea alba and extending about half way to the transverse processes of the lumbar vertebræ. Using a catgut suture, commencing at the inferior part of the wound I stitched it over and over, taking good, deep stitches about three-quarters of an inch apart, using iodoform freely. I then sutured the integument with interrupted sutures and washed it with a solution of creolin, dusting it with boracic acid.

I left the hobbles on until he was entirely out from under the influence of the anæsthetic ; then let him up and placed him in a box stall, tying him so he could not lie down. The first twelve hours did not allow him any feed, but some water.

Next morning found horse pawing for feed ; quite badly swollen ; pulse 52, temperature  $101^{\circ}$ . Removed the two inferior stitches in the integument, allowing about a pint of serous fluid to escape. Took my injection pump, and daily washed it out with a solution of creolin. The first twelve days the pulse varied from 48 to 60, and the temperature from  $100\frac{1}{2}$  to  $102^{\circ}$ . His daily feed was eight quarts scalded oats and four quarts of bran. At the end of twelve days began to feed some hay, and at the expiration of twenty-five days he was doing his regular driving.

## EXTRACTS FROM FOREIGN JOURNALS.

## PROGNOSIS AND THERAPEUTIC VALUE OF THE PRODUCTS OF THE BACILLUS OF GLANDERS.

BY M. BONOME, Padua.

The author has made numerous experiments upon the action of malleine in animals and even in man.

All animals have not an even sensibility to the products of the bacillus. The donkey and the cat lose flesh rapidly and suffer with conjunctival and nasal catarrh. At times they have pustulous eruptions and a lowering of the temperature when very small doses of malleine are given every twenty-four or forty-eight hours. Rabbits react very easily; they die very readily after subcutaneous injections of a few drops of malleine. Dogs and Guinea-pigs, affected with experimental glanders, react by rapid emaciation and extension of their glanderous lesions.

As a means of diagnosis the author has used it in thirty-two suspicious cases; twenty-four reacted; eighteen of these were destroyed, and the diagnosis confirmed in seventeen. The eighteenth had none. The other six animals, which were not destroyed, did not show any other indication of glanders, and the inoculation of their secretions gave also negative results.

Experimented on man malleine at the dose 1-15 to 1-20 of a cubic centimeter, has given a febrile reaction, with increased circulation, polyuria, headache and swelling of the mucous membrane affected. The reaction lasted from six to thirty hours. Similar doses, given after a rest of two or three days, produced a great improvement in the manifestation of the patient.

In spontaneous glanders Mr. Bonome has obtained good results. Fourteen injections of malleine, made in forty-five days, were followed by the disparition of the symptoms, and have remained free of them for over a year. Dogs affected with glanders were also cured by injections of malleine. Glanderous Guinea-pigs were not cured with the malleine, except a few which were treated with the serum of beef blood, which had been for two weeks in contact with the bacillus of glanders.—*Inter. Cong. of Rome.*

## A RARE CASE OF TUBERCULOSIS IN THE HORSE.

BY PROF. G. P. PIAUA, Milano.

From this case the author comes to the following conclusions :

1. In tuberculosis of horses, the bacilli have the same characters as in tuberculosis of other animals, as far as form, dimensions as their way of action with the various reactives. 2. But the tubercles of horses have characters which distinguish them from those of other animals. For instance, the caseification is missing, or at least very rare ; they are very vascular, even in the most central parts ; they contain numerous large (giant) cells. 3. All these peculiarities are independent of the special properties of the bacilla ; a rabbit inoculated with equine tuberculous matter has contracted tuberculosis, which presented all the characters of this disease in the rabbit.—*Inter. Cong. of Med. of Rome.*

## ŒSOPHAGEAL JABOT IN A COLT.

M. A. LABAT.

This case is interesting from the double anomaly which gave use to it. The subject is aged seven months. He has always presented a difficulty in swallowing, and at three months developed a tumor on the right side of the neck. This increased rapidly, and manifested itself when, and immediately after the colt had been sucking. At other times the neck is normal on both sides. The condition increased as the animal grew older, the tumor becoming very large, extending beyond half of the neck and giving rise to repeated severe disturbances of digestion. The condition increased in severity and one day he was found dead.

At the post-mortem it was found that the œsophageal dilatation, which was displaced on the right side, was enormous and extended into the thoracic cavity as far as the base of the heart. It seemed to be divided in two portions by a semi-contraction, which is seen at a point where was the tracheal bifurcation ; it twists itself as an S and returns to the left, where beyond it is again dilated. By a peculiar arrangement the trachea itself had undergone changes in its normal position, its posterior face being twisted to be related to the jabot on the right side.—*Rev. Veter.*

COMPLICATIONS OF ACTUAL CAUTERIZATION BY THE APPLICATION  
OF BICHROMATE OF POTASH OINTMENT.

BY THE SAME.

The subject was lame on one of his hind legs, and was fired in lines on the tendon and canon of that leg. The effects of the cauterization appearing too light, a friction of ointment of bichromate of potash was applied.

The first result was a severe swelling of the leg. Then the fired surface became inflamed and extensive vegetations began to appear, and increased in such a way that in a short time two enormous tumors existed. Situated one on each side of the leg, these growths were hemispherical, somewhat regular and smooth on their surface, though slightly bleeding to the touch, painless, very hard, fibrous like and surrounded at their bases by several smaller ones.

The animal was destroyed for economy sake, but the danger of such application is nevertheless well exhibited.—*Ibid.*

TRACHEOTOMY IN THE TREATMENT OF NASAL HÆMORRHAGE.

BY M. SOUCAIL.

This case is that of a heavy draught horse, which, in falling while in the shaft of a heavy truck, severely injured himself about the head and had a profuse hæmorrhage from the nostrils which threatened to be fatal if not stopped at an early moment. This hæmorrhage is due to laceration of the external maxillary artery, of the superior dental and of the nasal artery.

Leaving this last stopped by itself, the facial is ligatured but the superior dental cannot be secured, and plugging of the wound is applied. As this fails, other means are employed, such as cold water, bandages and so on, but all without avail.

Having observed that the hæmorrhage has increased at the time of expiration, the author decides to prevent the respiration through the nasal cavities and had recourse to the operation of tracheotomy to prevent it. This is followed by a sudden arrest in the hæmorrhage. The lesions of the face secured proper attention, and recovered in due time.—*Ibid.*

## SARCOMA OF THE SUBLUMBAR REGION IN THE COW.

Bx M. LARRIEU.

This animal had a fracture of one of her horns, for which treatment was required. After a month of treatment the wound had not cicatrized, but during that time the animal had presented peculiar symptoms which ended in her death. She showed disturbances of her digestive apparatus which justified a diagnosis of gastro-enteritis, but which remained rebel to all forms of treatment, and on further and closer examination it was suspected that she might be suffering with a renal tumor involving the sublumbar ganglions. She soon developed paraplegia, with a large collection of fluid in the abdominal cavity, and ultimately died.

At the post-mortem a large tumor, weighing twelve pounds, was found situated in front of the right kidney, and which, under examination with the microscope, presented the character of a large fasciculated sarcoma. The right kidney was atrophied and the bladder contained a thick muco purulent urine.—*Ibid.*

## CONTRIBUTION TO THE STUDY OF LIVER DISEASES IN DOMESTIC ANIMALS.

By M. L. BEAUDAIS.

*1st Obsv.* Norman cow, six years old, with a history of good health. Since her last calf she has lost flesh; lately her milk has stopped, her coat is staring, conjunctives are yellow; respiration accelerated; temperature normal, auscultation negative as far as affections of the lungs or of the heart. No diagnosis made. For five days she was submitted to a treatment of sinapisms under the abdomen, sulfate of sodæ, and gentian without success. She died. At post-mortem the liver is found enormous, softened and easily torn; Glisson capsule thickened, hepatic tissue reduced to a dark wine colored mass, gall bladder enormously distended with dark bile, kidneys enlarged but normal, like all the other organs.



*2d Obsv.* Chestnut mare, fourteen years. For six years has never been sick. Her work is moderate, she feels well. For the last two months she has failed in flesh, she is less active, she stops while at work, she lays down when in the stable as an animal that is tired, she has yet good appetite, a moderate drinker in time past, she has now great thirst, urine normal.

The symptoms are: Yellow mucous membrane, auscultation negative, rectal exploration without result, temperature normal, easily tired when urged to trot, and then the respiration is labored and rapid. She has at times profuse sweating all over the body. Notwithstanding a tonic treatment of arsenic, she grows rapidly worse, and is ultimately destroyed.

Post-mortem: the liver is enlarged, weighing over eighteen pounds, Glisson capsule is readily torn, the hepatic tissue soft and reduced in a mass similar to that of the preceding case; kidneys very large but normal. All the other organs healthy.

These two cases of softening of the liver in two different species of animals are certainly interesting as far as their symptoms, their lesions and also the length of time of their existence.—*Ibid.*

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## BIBLIOGRAPHY AND EXCHANGES.

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*Pathology and Therapeutics of Domestic Animals.* By Prof. Friedberger, of Munich, and Fröhner, of Berlin. Translated by Prof. W. L. Zuill, M.D., D.V.S., of Philadelphia, with the notes of the French translators and selections from those of Prof. Trasbot, in two volumes.

The first volume will be ready on or before November 30, 1894, and will contain diseases of the digestive, urinary, genital and circulatory organs with the diseases of the skin.

The second volume will be issued on or about January 1, 1895, and will contain diseases of the apparatus of locomotion, nervous diseases, those of the respiratory apparatus, chronic

constitutional affections, infectious diseases and epizootic properly called. The work is published by the author.

*Journal of Comparative Pathology and Therapeutics*.—Edited by T. McFadyean, M. B. B. Sc., T.R.S.E., Royal Veterinary College, London, September, 1894.

The third part of Vol. VII., of this excellent journal is before us. Besides handsome illustrations relating to fracture of cervical vertebræ of horse, supernumerary digit of a colt with general articles on anthrax, louping ill in sheep, Sterility in the larger domestic animals and parasitic gastro-enteritis in cattle, there are three editorials on the diagnostic value of malleine on the bacillus of anthrax and tuberculosis in young cattle.

The reviews, clinical articles and abstracts furnishes to the reader much valuable matter of interest.

*Lehrbuch der Pharmakologie für Thierärzte*. By Dr. G. Nülbr, Professor in the High Veterinary School of Dresden, with 71 original plates.

This book is a treatise on the entire field of Pharmacology, Materia Medica and Chemical Pharmacy, specially arranged and prepared for the veterinary student.

In this edition careful studies and considerations of new drugs with their various uses are presented; and it being, so to speak, a combination of two works, viz: the third original edition and the Austrian Veterinary Pharmacopoeia, it will be found to contain a large amount of valuable material of the greatest interest.

*Journals Received*.—Berliner Thierärztliche Wochenschrift. Annals de l'Institut Pasteur. Progrès Vétérinaire. Veterinary Journal. Journal of Comparative Medicine and Veterinary Archives. (September, '94.) Veterinarian. Veterinary Record. Our Animal Friends. Veterinary Magazine, (September.) Clinica Vétérinaire. Bulletin of Pharmacy. Prepe Veterinarie. Recueil de Médecine Vétérinaire. Zeitschrift-fleisch und Milchhygiene. Gazette de Medicina Veterinaria (Madrid.) Therapeutic Gazette. Revue and Medicine and Medicine Veterinary. Der Hufschmied.

*Pamphlets*.—Atlantic Cheire. Southern Medical Record. Record West Virginia Agricultural Station. Report of Kansas State Board of Agriculture. Iowa Health Bulletin. Philadelphia Polyclinic. Bulletin Agricultural Station of Louisiana. Lehrbuch der Speciellen Pathologi und Therapie für Thierärzte. Deutsche Zeitschrift für Thiermedicine und Vergleichende Parhologie.

## STAMPING OUT TUBERCULOSIS.

### REGULATIONS ADOPTED BY THE CATTLE COMMISSIONERS OF MASSACHUSETTS.

*First.*—All the states and territories of the United States, the District of Columbia, Canada, Great Britain, and all other localities without the limits of this commonwealth, are hereby declared infected districts.

*Second.*—It is hereby ordered that all neat cattle brought within the limits of this commonwealth from any of said localities on and after November 5th, 1894, are hereby made subject to quarantine until they have been inspected and released by this board or one of its members thereto duly authorized.

*Third.*—Except as hereinafter provided no such neat cattle shall be unloaded, except in case of accident, for any purpose whatsoever within this commonwealth, at any place or places other than at such quarantine stations as are herein designated, or which may hereafter from time to time be designated by this board, unless upon written permit signed by the board of cattle commissioners or one of its members.

*Fourth.*—The stockyards in Brighton and Watertown, and the premises of the New England Dressed Beef and Wool Company in Somerville, are hereby designated as quarantine stations.

*Fifth.*—All neat cattle entered at any quarantine station, except as herein provided, shall immediately be placed in quarantine, and so remain at the expense of the owner or consignee, for a period of not less than twenty-four hours, and shall be subject to the tuberculin test. This test shall be made only by the Board of Cattle Commissioners or one of its members, or a duly authorized agent thereof, and without expense to the owner.

*Sixth.*—Every such animal which, in the opinion of this board or any of its members is affected with tuberculosis, will be condemned and slaughtered as provided in sections 45 and 53 of chapter 391 of the acts of 1894.

*Seventh.*—All animals which upon such inspection shall be adjudged free from tuberculosis and other contagious disease shall be branded with the seal of the commission. This brand will be placed upon the right horn and the outside of the right front hoof, on those animals having horns. Hornless cattle will be branded upon the right shoulder and upon the outside of the right front hoof.

*Eighth.*—All neat cattle passing through this commonwealth consigned from points without its limits for exportation from this state will not be examined as herein provided, but such animals shall remain in quarantine until transported without the limits of the commonwealth.

*Ninth.*—All neat cattle brought within this commonwealth consigned directly to the Brighton abattoir for slaughter shall be confined by themselves for identification, and shall not be released except after an examination as above provided, or except for immediate slaughter.

*Tenth.*—It shall be the duty of every person or persons, corporation or corporations, desiring to drive or cause to be driven, any neat cattle into this state from any point without its limits, to notify in writing the Board of Cattle Commissioners of his, their or its intention so to do, which notice shall state the town or city within this commonwealth through which it is the intention to enter, and the time when the drove will arrive within such city or town. After crossing the border all such cattle shall be immediately placed in quarantine within the limits of such city or town, at the expense of the owner or consignee, and shall there remain until they have been examined and branded or destroyed, as hereinbefore provided.

*Eleventh.*—All neat cattle branded as herein provided shall be free to all markets in this commonwealth without further quarantine restrictions, until such time as the brand has disappeared from the hoof, except as provided by law.

*Twelfth.*—No person shall sell or offer for sale, or have in his possession except under quarantine within the stockyards at Brighton or Watertown, except as provided in sections 8

and 9, any neat cattle which are not branded as provided in section 7.

*Thirteenth.*—It is further ordered that a copy of this order shall be sent to each city and town throughout the commonwealth, and that every town shall cause a copy thereof to be posted in two or more conspicuous places within its limits, and shall cause a copy of the same to be published once a week for three successive weeks in a newspaper published therein, or if no newspaper be published within the limits of said town, then in a newspaper published within said county; and that each such city shall cause a copy of the same to be published twice a week for three successive weeks in a newspaper published within its limits.

*Fourteenth.*—This order shall take effect upon November 15, 1894.

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## VETERINARY LEGISLATION.

L. W. DINKELSPIEL, LL.D.

### CHAP. 674.

AN ACT to amend the public health law, and making an appropriation to carry out the provisions thereof, became a law May 12, 1894, with the approval of the Governor. Passed, three-fifths being present.

*The People of the State of New York, represented in Senate and Assembly, do enact as follows:*

SECTION 1.—Section sixty-two of the public health law is hereby amended to read as follows:

SEC. 62.—Destruction of domestic animals affected with tuberculosis or glanders.—Whenever the State Board of Health may deem it necessary for the prevention of the spread of tuberculosis in cattle, such Board may cause to be killed, any animal affected thereby, or which, by contact with diseased animals or by exposure or infection or contagion therefrom, such board may determine is liable to contract or communicate such disease; but no such diseased animal shall be so killed on account of tuberculosis unless first examined by a veterinary practitioner in the employ of the State Board of Health, and if desired by the owner, appraised as hereinafter provided. A local board of health shall, pursuant to rules and regulations prescribed by



the State Board of Health, caused to be killed, every horse affected by glanders, found within its jurisdiction, but no horse shall be so killed on account of glanders until the value thereof be appraised as hereinafter provided.

SECTION 2.—Section sixty-three of said act is hereby amended to read as follows:

SEC. 63.—Compensation to owners.—To determine the value of such animal, the comptroller shall designate some competent, disinterested person, residing within the judicial district in which such animal may be, to act as appraiser, with an appraiser to be selected by the owner of such animal, who shall proceed to appraise the value thereof. In case of a disagreement between the two appraisers, the third appraiser shall be selected by them, and the estimate of the value of either two of them shall be final. The animal shall be appraised at its sound value, provided, however, no single unregistered animal shall be appraised at more than sixty dollars; and no horse affected with glanders shall be appraised at more than fifty dollars. Each appraisal shall be in writing, signed by the appraiser or appraisers agreeing, and shall be delivered by them, if the animal be suspected of tuberculosis, to the veterinary practitioner in charge of such animal, and if the animal be a horse affected with glanders, to the secretary of the local board of health having jurisdiction thereof. Upon the delivery of such appraisal, such animal shall be killed, as hereinbefore provided; and if it be killed on account of tuberculosis, the veterinary practitioner in charge thereof shall forthwith make a post-mortem examination of the animal, and if it shall be discovered on such post-mortem examination that the animal was affected by tuberculosis, the owner of the animal shall be entitled to receive one-half of the appraised value; provided, however, that not more than sixty dollars shall be paid for a diseased registered animal and not more than twenty-five dollars shall be paid for a diseased unregistered animal, but if such examination of the animal killed on account of tuberculosis discloses that the animal was not affected with tuberculosis, the owner shall be entitled to receive the full appraised value. The written appraisal of the value of an animal killed on account of tuberculosis, and a written statement of the result of the post-mortem examination thereof, signed by the veterinary practitioner in charge thereof, shall forthwith be transmitted by such veterinary practitioner to the secretary of the State Board of Health, who shall file the same in his office. The secretary of the local board of health having jurisdiction in the case of a horse affected with glanders shall in case such horse is killed, upon receipt of the written appraisal, signed by the appraiser or appraisers, as hereinbefore provided, forthwith make and sign a certificate of such fact, and transmit such appraisal and certificate to the secretary of the State Board of Health, who shall file the same in his office. Upon receipt, from the veterinary practitioner, in the case of an animal killed on account of tuberculosis, or from the secretary of the local board of health, having jurisdiction in the case of a horse killed on account of glanders, such secretary of the State Board of Health shall forthwith make a written certificate, signed by him, setting forth the name and post-office address of the owner of the animal killed, and the amount which such owner is entitled to be paid on account of the killing of such animal, and shall forthwith transmit such certificate to the comptroller, who shall issue his warrant upon the treasurer for the payment to such person of the amount so certified, and shall mail the same to such person at his post-office address as it appears by such certificate. No compensation shall be allowed to any person who shall have wilfully concealed the existence of

tuberculosis or glanders among his animals, or upon his premises, or who, directly or indirectly, by act or wilfull neglect, shall have contributed to the spread of such diseases, or either of them, and no compensation shall be made under the provisions of this act to any owner, for animals killed unless the animal or animals killed shall have been actually owned and possessed by the owner thereof, within this state for a period of three months prior to such condemnation. The appraisers to be appointed as aforesaid, by the comptroller, shall hold office during the pleasure of the State Board of Health. Each appraiser so appointed shall receive as compensation the sum of five dollars per day for each day actually employed, and shall also be paid his actual necessary disbursements, but no claim for services or disbursements shall be allowed or paid unless accompanied by a verified detailed statement thereof.

SEC. 3.—The sum of thirty thousand dollars, or so much thereof as may be necessary, is hereby appropriated out of any funds not otherwise appropriated, for the payment of claims to owners of animals killed in pursuance of the provisions of this act.

SEC. 4.—This act shall take effect immediately.

STATE OF NEW YORK, }  
Office of Secretary of State. } ss.

I have compared the preceding with the original law on file in this office, and do hereby certify that the same is a correct transcript therefrom, and of the whole of said original law.

GIVEN under my hand and the Seal of office of the Secretary of State, at the city of Albany, this nineteenth day of May, in the year one thousand eight hundred and ninety-four.

JNO. PALMER,  
Secretary of State.

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## CORRESPONDENCE.

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*Editor AMERICAN VETERINARY REVIEW:*

DEAR SIR :—The writer of the sketches from the last meeting of the United States Veterinary Medical Association, has it that I returned to Chicago not very well pleased or convinced with Dr. Salmon's defence of the two year schools. This is true. But when the same writer alleges that "Dr. Salmon's arguments were so powerful that no one dared to answer them," I wish to take issue with him. To my mind it would have been a pity had anybody replied to those arguments, for certainly it would have weakened the effect they made on the audience. Apparently nobody shared the opinion of Dr. Salmon. His eu-

logy was sweet but weak, and he has risked to make himself the champion of a dying cause.

When anybody attacks the United States meat inspection service, Dr. Salmon's patriotism gets immediately aroused, and he violently throws mud at the foreigners. But in weighing the conditions of our profession in our own country Dr. Salmon does not exhibit that patriotism and pride which we ought justly expect from him in his influential position.

I do not write this to criticise but to suggest, for I firmly believe that the time has come when our American veterinary colleges—all of them—need remodelling to bring them up to a higher plane, and I sincerely hope that before long the worthy chief and president of the Washington College will join hands with us in helping to accomplish this patriotic duty.

OLOF SCHWARZKOPF.

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*Editor* AMERICAN VETERINARY REVIEW :

DEAR SIR :—In my article in October number of the REVIEW a typographical error was made on the second last line of page 504; it reads, "was of fibroid duration;" whereas, it should read "was of fibroid nature." Please correct in your next issue, and oblige,

Yours truly,

J. C. MEYER, *Sec.*

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SOCIETY MEETINGS.

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VETERINARY MEDICAL ASSOCIATION OF NEW YORK COUNTY.

The regular meeting of the above-named association was held on Tuesday evening, October 2d, 1894, at 155 West 56th St., with the president, Dr. R. S. Heidekoper, in the chair.

On roll-call the following members were present, viz.: Drs. Delaney, Ellis, Giffen, Glover, Huidekoper, Hanson, Neher, Machiu, O'Shea, Parkeson, Robertson, Ryder.

The minutes of last meeting were read and approved.

*Board of Censors.*—Reported favorably the names of Drs. Francis H. Flagge, Bruce Mackey, and Robert Finlay.

Moved and seconded that the report be received. Carried.

*Papers.*—Letters were received from Drs. Sherwood and Gill, the essayists of the meeting, stating they could not be present.

*Reports.—Judiciary Committee.*—Dr. Giffen, chairman, reported that the committee would report at the next meeting.

*Committee on Charges.*—Dr. Neher, chairman, stated that the committee would give a complete report at the next meeting.

*Election of New Members.*—Moved by Dr. Robertson and seconded by Dr. Neher that the secretary cast a favorable ballot for Drs. Flagge and Mackey. Carried.

The election of Dr. Robert Finlay followed, the president appointing Drs. Delaney and O'Shea tellers.

Moved by Dr. Giffen and seconded by Dr. Hanson that the name of Dr. Finlay be considered at the next regular meeting. Lost.

On ballot, eleven votes were cast, of which six were in favor and five against the election of Dr. Finlay.

A discussion then followed as to what constituted an election, a two-third or majority vote, as the by-laws did not state. The president ruled that a majority would elect, and declared Dr. Finlay a member of the association.

*Applications for Membership.*—Dr. Wm. C. Rutherford and Leo. Brusacher were referred to the censors.

*New Business.*—Moved by Dr. Robertson and seconded by Dr. Hanson, that a committee of three be appointed to revise the constitution and by-laws. Carried. The chair appointed Drs. Robertson, Hanson and Neher.

Dr. Robertson then moved that a committee of three be appointed to select a place of meeting for the association. Carried.

\* Chair appointed Drs. Robertson, Glover and Gill.

Essayists for next meeting, Neher and Gill. Adjourned.

## MAINE VETERINARY MEDICAL ASSOCIATION.

A regular meeting of the Maine Veterinary Medical Association was held at the Elmwood Hotel, Waterville, October 10th, at 8 P. M., President Dr. Bailey in the chair.

The following members answered to the roll-call: Drs. Bailey, Lord, Russell and Choate.

The minutes of the last meeting were read and accepted.

The proposed amendment to the by-laws was adopted as follows: It is proposed that Section IV., Article 3, five members shall constitute a quorum for the transaction of business, shall be amended so as to read, "three members shall constitute a quorum for the transaction of business."

The Committee on Professional Fees was requested by the president to report at the next meeting.

Drs. W. D. Farnum, Rockland, Alfred L. Murch, Bangor, H. S. Usher, Hollis, Maine, were elected to membership in the association.

Dr. Dwinal read a paper on Acute Cerebral Inflammation, and embracing cerebritis and meningitis, followed by discussion.

Dr. Russell read a paper on Diagnosis of Tuberculosis, which was well discussed.

A motion was made and seconded that the association tender the essayists a vote of thanks for the able manner in which they treated their subjects. Carried.

Drs. Lord and Choate were appointed to read papers at next meeting.

The next meeting will be held at Augusta, January, 1895.

H. H. CHOATE, D.V.S., *Sec.*

## THE MISSOURI VALLEY VETERINARY ASSOCIATION.

July 20, 1894, a large number of representative veterinarians of eastern Kansas and western Missouri met at the National Hotel, in Leavenworth, Kan., for the purpose of organizing themselves into an association for the elevation of the profession, the dissemination of professional ideas and the cultivation of fraternal feeling. That the need of such an association existed,



was evidenced by the numbers present, and the interest manifested.

The meeting was called to order at 7.30 P. M., Dr. Lemay, of Ft. Riley, being chosen temporary chairman, and S. L. Hunter, Fort Leavenworth, temporary secretary.

"The Missouri Valley Veterinary Association," was the name adopted after several ballots were taken.

Upon proceeding to the election of officers Dr. SESCO Stewart was elected president, Dr. R. H. Harrison, 1st vice-president, Dr. D. Lemay, 2d vice-president, and Dr. S. L. Hunter, secretary-treasurer.

The president appointed the following gentlemen censors: Drs. Ernst, Demay, McCurdy, Moore and Saunders.

The president, Dr. Barth and Dr. Sihler, were duly elected to draft constitution and by-laws.

The secretary was duly empowered to have printed application blanks for the use of our association. Several valuable and instructive papers were presented and read, among which were Dr. Wattlis', subject, "Don't be a Clam," and Dr. Stewart on "Duties and Opportunities of Veterinarians as Sanitarians, and its Relation to Human Medicine." Both papers were well prepared, and brought out a good discussion by the members.

It was decided to hold our next meeting in Kansas City, Mo., Oct. 3d, at 7.30 P. M. Adjourned.

S. L. HUNTER, V.S., *Sec.*

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KANSAS CITY, MO., Oct. 3, 1894.

The regular meeting of the Missouri Valley Veterinary Association was held in Kansas City, Mo., on October 3, 1894. Meeting was called to order promptly at 7.30 P. M., with President Stewart in the chair. Upon calling the roll the following members responded: Drs. Atherton, Black, Bray, Harrison, Hunter, Moore, Saunders, Sihler, Stewart, and Wattles. Members absent: Drs. Lemay, McCurdy, Ernst, and Barth. There were present about thirty-five veterinarians, and a number of students of the Kansas City Veterinary College.

The minutes of the previous meeting were read, and on motion, duly seconded, were approved.

President Stewart delivered his opening address, which was full of most excellent points.

The secretary's report was read and approved.

Owing to the fact that Dr. Harrison was obliged to leave on an evening train, regular business was suspended to hear Dr. Harrison's paper, "Parturient Apoplexy in the Cow."

The discussion following Dr. Harrison's paper was excellent, and many valuable points brought out.

The Board of Censors reporting favorable on the following applications, they were duly elected to membership: Drs. John Bell, Wm. M. Bell, N. S. Mayo, A. C. Euart, F. W. Cook, John Forbes, G. T. Netherton, Dillard Ricketts, F. L. DeWolf, I. K. Atherton, L. M. Kluttz, and F. M. Linscott.

The Constitution and By-Laws were read by chairman, and after discussing the same were adopted without change.

Dr. Moore's paper on "A Practical Use of Guttapercha in Veterinary Dental Surgery," was then open for discussion.

Dr. Bray being obliged to be absent, his paper was read by the secretary. Also Dr. Bray exhibited a sample of the ticks obtained from southern cattle.

Our next meeting will be held in Atchison, Kan., when our numbers, no doubt, will be again augmented. We now have a membership of twenty-six, and as all manifest a great interest, you may expect to hear favorable reports from the Missouri Valley Veterinary Association in the future.

S. L. HUNSTER, V.S., Sec.

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## EXTRACTS FROM EXCHANGES.

### STATE CATTLE KILLING.

Of the 20,500 cattle examined, the officers of the State Board of Health from January, 1893, to March, 1894, 959 had tuberculosis and were killed. Of these Orange County had 154, Dutches, 145, Delaware, 87, and Sullivan none. This is a

feather in the cap of Sullivan County, whose main industry, next to summer boarders, is supplying milk to the creameries at about two cents a quart. While the people of this state have no occasion to begrudge any expenses legitimately incurred in scientific examinations of this nature, it is, perhaps, an occasion for remark that this work cost \$9,025, while the state's outlay for the animals killed was \$18,309.

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#### CONTAGIOUS DISEASES IN FRANCE.

In one of the reports on contagious diseases of animals in the Department of the Seine, are found some extracts dealing with hydrophobia, and some interesting details concerning other scourges, which are liable to be transmitted to man. Tuberculosis in cattle is the subject of a lengthy article, and the reporter has found traces of the disease in no less than seventy cow-houses in the department, but the proportion of infected animals is only 3.4 per 1,000, and he combats the commonly received opinion that direct infection through milk is a frequent cause of consumption in the human species. He recommends, however, a more stringent enforcement of the law relating to contagious diseases, and states that glanders in horses is becoming so prevalent as to render strong measures necessary. Finally, he insists on the importance of doing away with private slaughter-houses which abound in the suburban districts, as they furnish unscrupulous owners of diseased beasts with considerable facilities for disposing of them as sound.

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